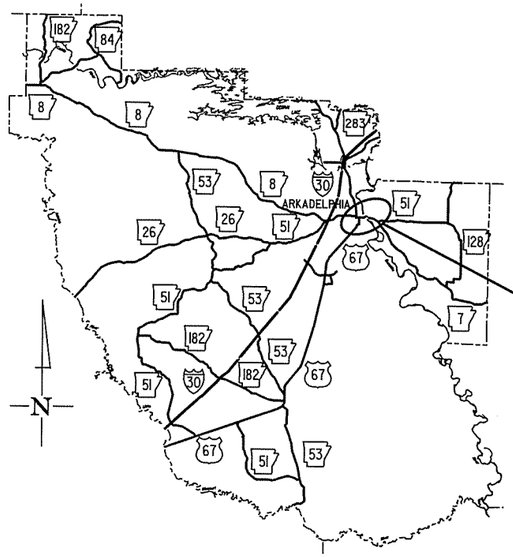
JOB 070240

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	1	172
				(2)	OUACHITA RIVER STR. & APPRS. (ARKADELPHIA) (S)			

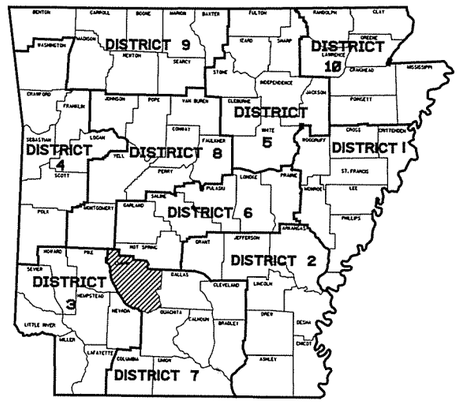
ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
CONSTRUCTION PLANS

OUACHITA RIVER STR. & APPRS. (ARKADELPHIA) (S)
CLARK COUNTY

ROUTE 51 SECTION 2
F.A.P. STPC-NHPP-9013(6)
JOB 070240



VICINITY MAP



ARK. HWY. DIST. NO. 7

NOT TO SCALE

STA. 100+99.94 ℄ CONST. HWY. 51 RELOC.
BEGIN CONSTRUCTION - JOB 070240
LOG MILE = 0.21

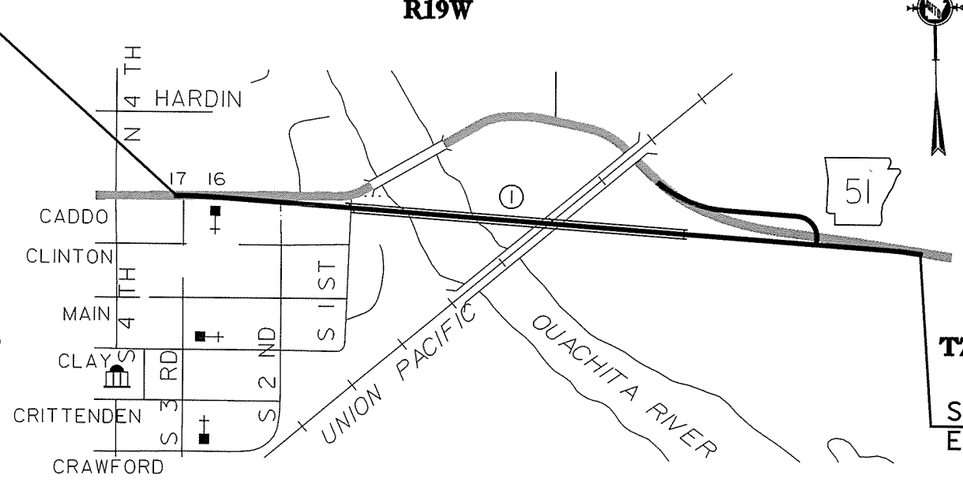
BRIDGE DATA

① STA. 109+45.66 BRIDGE END
1627'-0" CONTINUOUS COMP. PLATE GIRDER UNIT
BRIDGE NO. 07316
40'-0" CLEAR ROADWAY WIDTH
1629'-5 1/8" BRIDGE LENGTH
STA. 125+75.09 BRIDGE END

BEGIN OF PROJECT
LAT. 34°07'15"N
LONG. 93°02'59"W

MID-POINT OF PROJECT
LAT. 34°07'15"N
LONG. 93°02'45"W

END OF PROJECT
LAT. 34°07'13"N
LONG. 93°02'26"W



DESIGN TRAFFIC DATA

DESIGN YEAR	2034
2014 ADT	4,600
2034 ADT	6,000
2034 DHV	660
DIRECTIONAL DISTRIBUTION	0.60
TRUCKS	10%
DESIGN SPEED HWY. 51	50 MPH RURAL 45 MPH URBAN

STA. 137+03.60 ℄ CONST. HWY. 51 RELOC.
END CONSTRUCTION - JOB 070240

LENGTH COMPUTED ALONG C.L. OF CONSTRUCTION

GROSS LENGTH OF PROJECT	3603.66	FEET OR 0.683 MILES
NET LENGTH OF ROADWAY	1974.23	FEET OR 0.374 MILES
NET LENGTH OF BRIDGES	1629.43	FEET OR 0.309 MILES
NET LENGTH OF PROJECT	3603.66	FEET OR 0.683 MILES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 14517
PAUL ROBBINS
8-25-14

P.E. JOB 070240
NON-PART.

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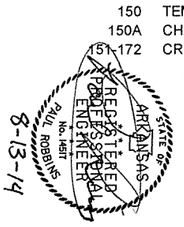
151-172	CROSS SECTIONS			

NOTE: CROSS SECTIONS NOT NORMALLY INCLUDED IN PLANS SOLD TO PROSPECTIVE BIDDERS, BUT ARE AVAILABLE UPON REQUEST.



INDEX OF SHEETS

					PLAT REVISED
					PLAT FILED
					DATE REVISED
					PLAT FILED

(2)

INDEX OF SHEETS

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JOB NO.				

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				6	ARK.			
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(2) GOVERNING SPECS. & GENERAL NOTES

GENERAL NOTES

1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U.S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS BID ITEMS.
5. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
6. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO INSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FENCE TO CONTROL LIVESTOCK IN AREAS WHERE PASTURES ARE SEVERED. WIRE FENCES MAY BE CONSTRUCTED INITIALLY, OR IN LIEU THEREOF, THE CONTRACTOR AT HIS OWN EXPENSE, MAY ELECT TO PROVIDE TEMPORARY FENCING SUITABLE TO CONTAIN LIVESTOCK.
8. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
9. THE CONTRACTOR SHALL CONTACT ALL FIBER OPTIC COMPANIES INVOLVED ON THIS PROJECT AT LEAST FIVE (5) WORKING DAYS BEFORE CONSTRUCTION, INCLUDING REMOVING AND INSTALLING ANY FENCING, AND TAKE EVERY PRECAUTION NECESSARY TO AVOID CONFLICT WITH THE FIBER OPTIC CABLES. THE CONTRACTOR SHALL TELEPHONE ARKANSAS ONE-CALL SYSTEM AT 1-800-482-8998 TO DETERMINE THE LOCATION OF THE BURIED FIBER OPTIC CABLES.
10. THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED BY SAWING ALONG A NEAT LINE. AFTER SAWING THE PAVEMENT TO BE REMOVED SHALL BE CAREFULLY REMOVED IN A MANNER THAT WILL NOT DAMAGE THE PAVEMENT THAT IS TO REMAIN. ANY DAMAGE OF THE ASPHALT PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

GOVERNING SPECIFICATIONS

ARKANSAS STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION OF 2014, AND THE FOLLOWING SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS:

NUMBER	TITLE
ERRATA	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273	SUPPLEMENT - TRAINING PROGRAM - JOB 070240
FHWA-1273	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273	SUPPLEMENT - WAGE RATE DETERMINATION
108-I	LIQUIDATED DAMAGES
410-I	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
620-I	MULCH COVER
JOB 070240	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 070240	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 070240	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 070240	DELAY IN RIGHT OF WAY OCCUPANCY
JOB 070240	DETAILS OF BOATER SAFETY ON OUACHITA RIVER
JOB 070240	DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES
JOB 070240	DRILLED SHAFT FOUNDATIONS
JOB 070240	EXCAVATION AND EMBANKMENT
JOB 070240	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 070240	HIGH PERFORMANCE PAVEMENT MARKING
JOB 070240	INSURANCE, CONSTRUCTION, AND FLAGGING REQUIREMENTS ON RAILROAD PROPERTY (UPRR)
JOB 070240	MANDATORY USE OF INTERNET BIDDING
JOB 070240	NESTING SITES OF MIGRATORY BIRDS
JOB 070240	NONDESTRUCTIVE TESTING OF DRILLED SHAFTS
JOB 070240	PARTNERING REQUIREMENTS
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JOB 070240	PRE-BID ON SITE INVESTIGATION OF SOIL CONDITIONS
JOB 070240	RAMMED AGGREGATE PIERS
JOB 070240	REMOVAL AND DISPOSAL OF GUARDRAIL
JOB 070240	RETAINING WALLS
JOB 070240	SECTION 404 NATIONWIDE 23 PERMIT REQUIREMENTS
JOB 070240	SHORING
JOB 070240	SOIL STABILIZATION
JOB 070240	SPECIAL FACILITIES AT SITE
JOB 070240	STORM WATER POLLUTION PREVENTION PLAN
JOB 070240	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 070240	UTILITY ADJUSTMENTS
JOB 070240	VALUE ENGINEERING
JOB 070240	WARM MIX ASPHALT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 14517
PAUL ROBBINS
11-4-14

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				6	ARK.			
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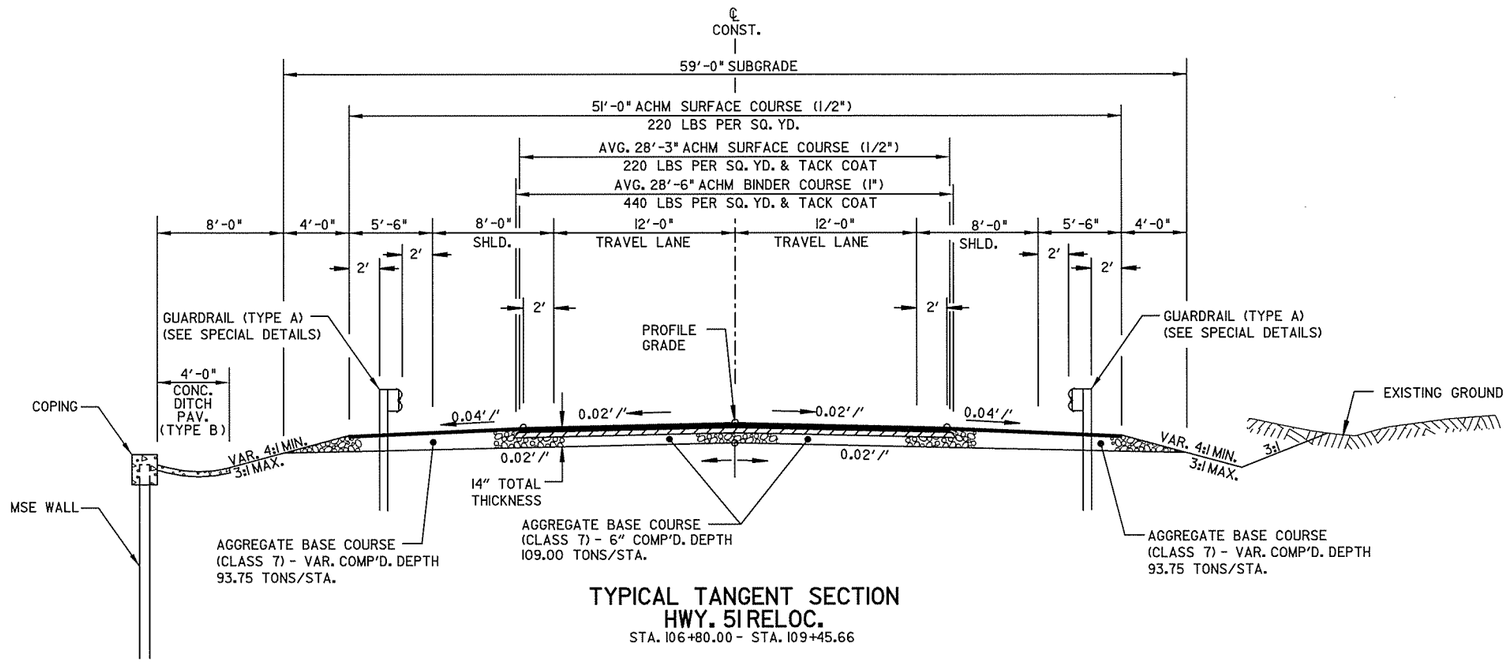
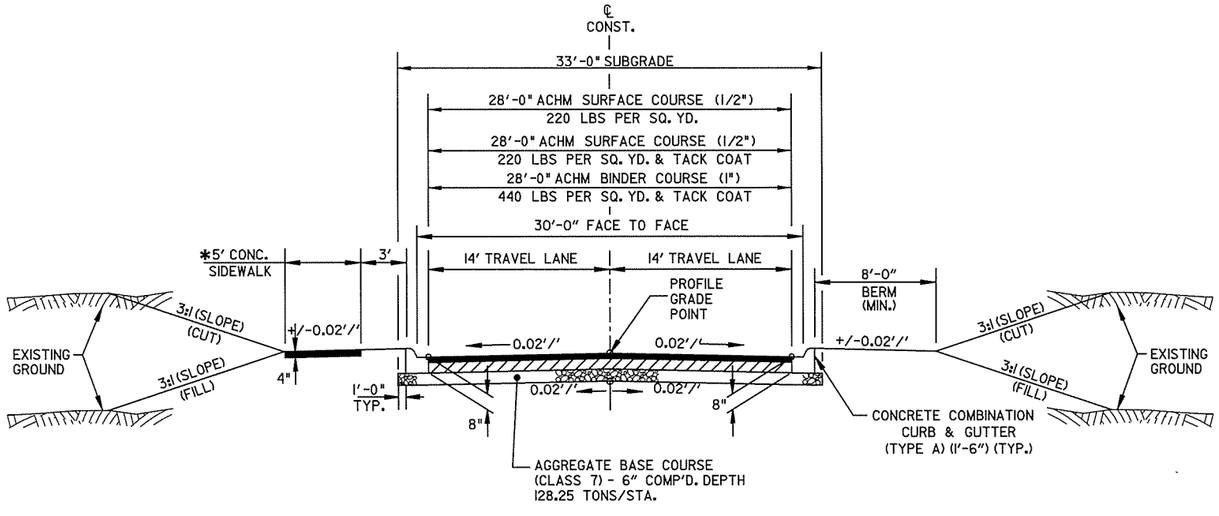
(2) TYPICAL SECTIONS OF IMPROVEMENT



TYPICAL TANGENT SECTION
HWY. 51 RELOC.
STA. 106+80.00 - STA. 109+45.66

NOTES:

1. REFER TO CROSS SECTIONS FOR DEVIATION FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.
2. THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.
3. PRIOR TO AND DURING PLACEMENT OF PAVEMENT IN FRONT OF CURB AND GUTTER, THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AT ALL TIMES. THE METHOD(S) USED SHALL BE APPROVED BY THE ENGINEER. PAYMENT FOR THIS WORK SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.
4. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.



*NOTE: CONC. SIDEWALK IS TO BE CONSTRUCTED FROM STA. 100+99.94 LT. TO STA. 104+58.80 LT. CL. CONST.

TYPICAL TANGENT SECTION
CURB AND GUTTER
HWY. 51 RELOC.
STA. 100+99.94 - STA. 106+80.00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 14517
PAUL ROBBINS
8-13-14

TYPICAL SECTIONS OF IMPROVEMENT

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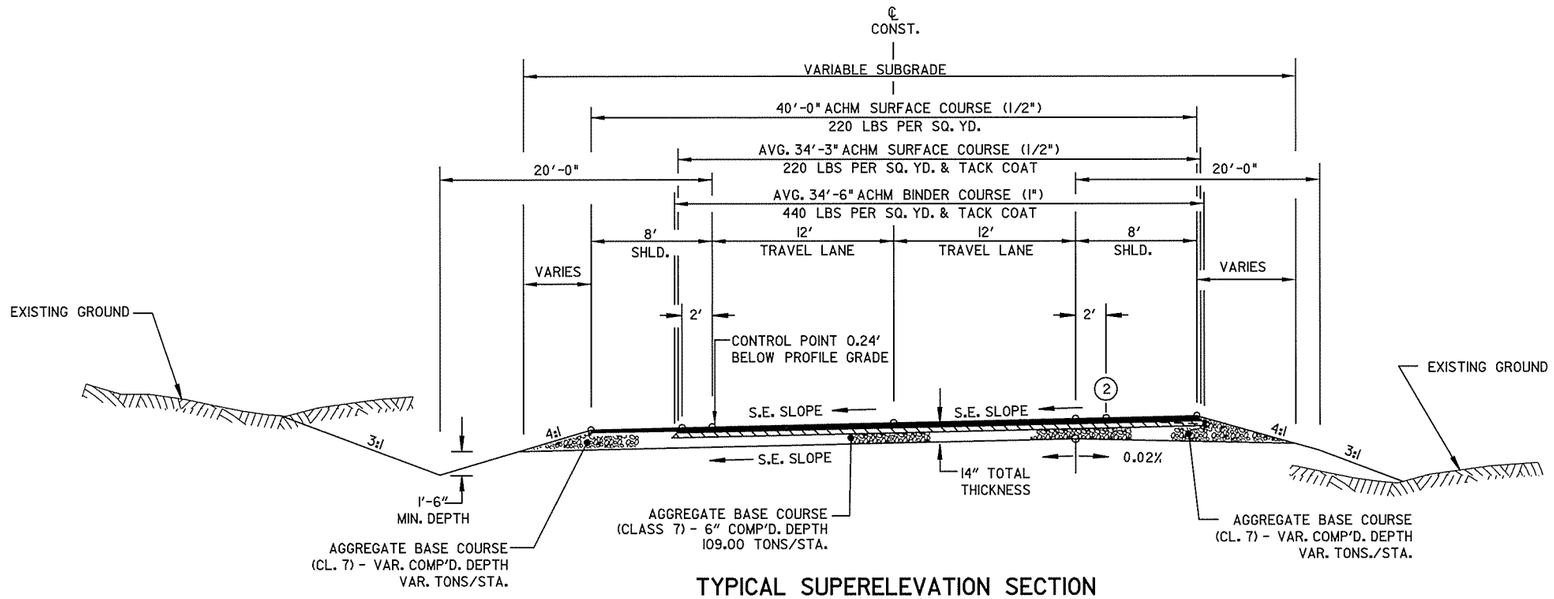
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	5	172

(2) TYPICAL SECTIONS OF IMPROVEMENT

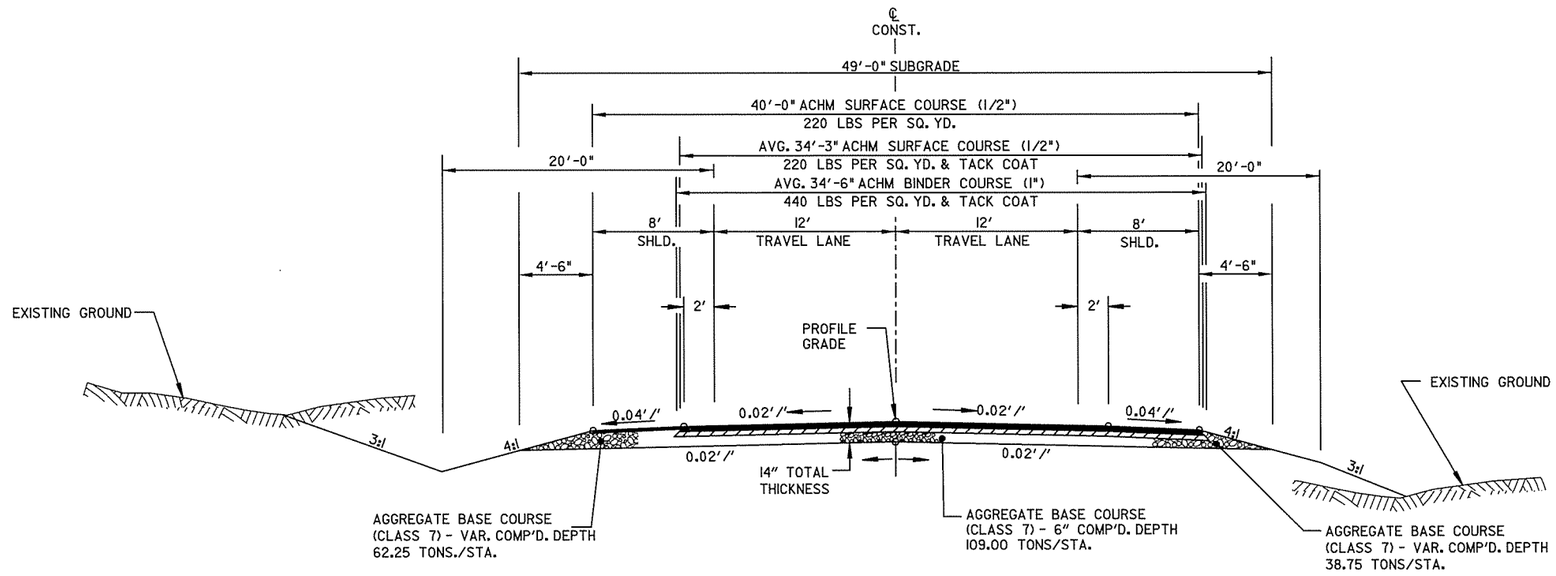


TYPICAL SUPERELEVATION SECTION HWY. 51 RELOC.

STA. 133+61.36 - STA. 137+03.60

NOTES:

1. REFER TO CROSS SECTIONS FOR DEVIATION FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.
2. ON ALL SUPERELEVATED CURVES AND THROUGH SUPERELEVATED TRANSITIONS (Ls), ALGEBRAIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08%.
3. THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.
4. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.



TYPICAL TANGENT SECTION HWY. 51 RELOC.

STA. 125+75.09 - STA. 133+61.36

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 14617
PAUL ROBBINS
8-13-14

TYPICAL SECTIONS OF IMPROVEMENT

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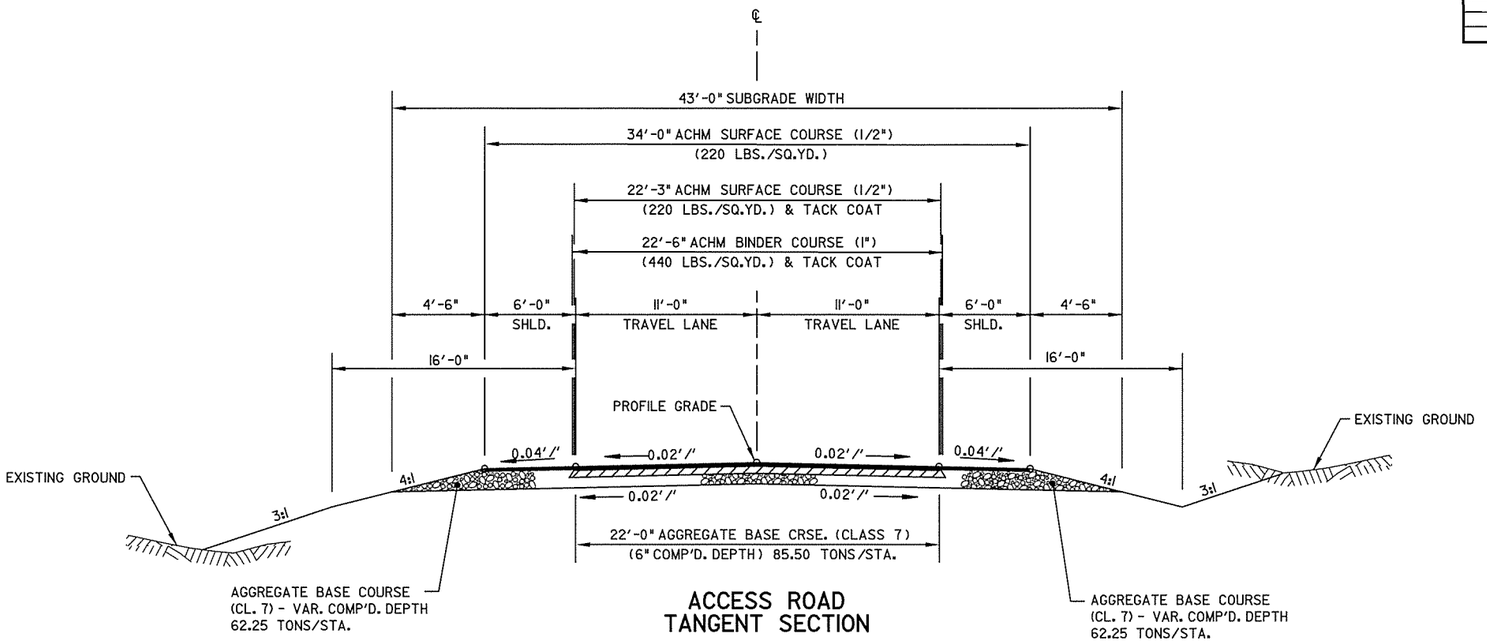
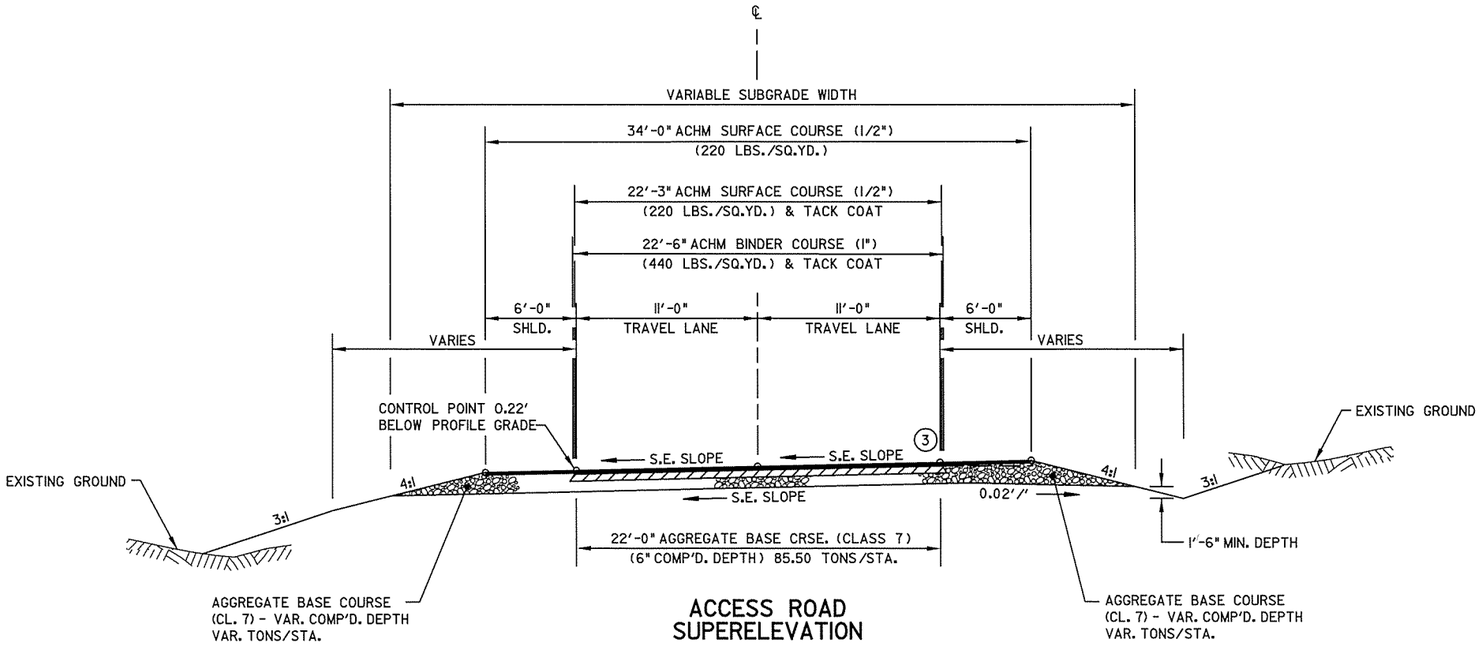
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	6	172

(2) TYPICAL SECTIONS OF IMPROVEMENT



ACCESS ROAD
TANGENT SECTION



ACCESS ROAD
SUPERELEVATION

NOTES:

1. REFER TO CROSS SECTIONS FOR DEVIATION FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.
2. THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.
3. ON ALL SUPERELEVATED CURVES AND THROUGH SUPERELEVATED TRANSITIONS (Ls), ALGEBRAIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08%.
4. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.

STATE OF ARKANSAS
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8-13-14

TYPICAL SECTIONS OF IMPROVEMENT

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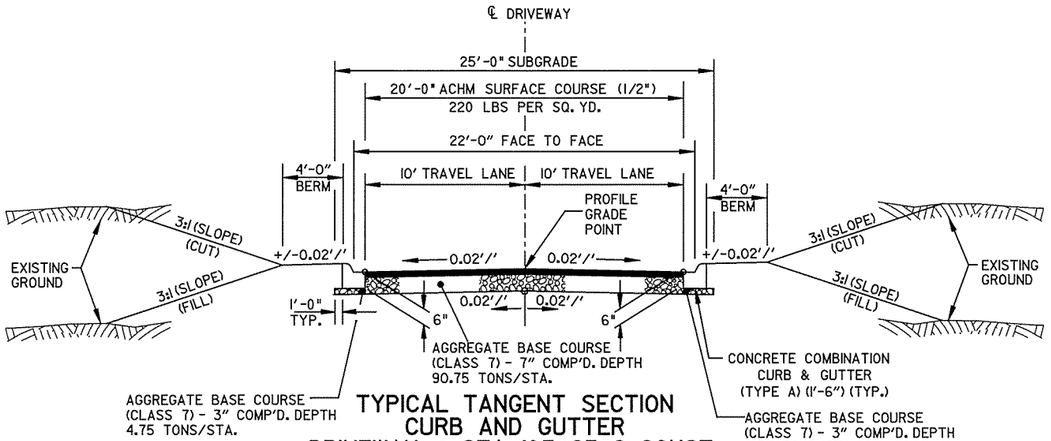
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	7	172

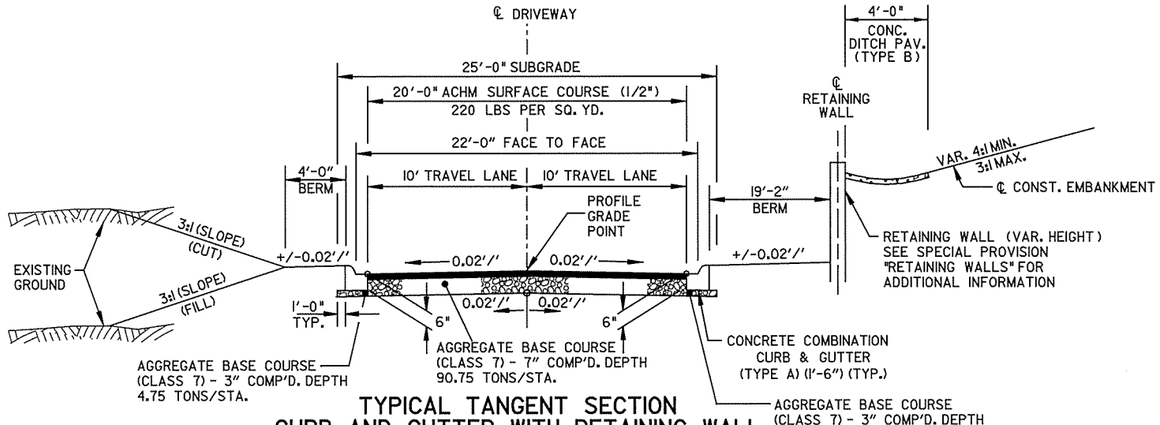
(2) TYPICAL SECTIONS OF IMPROVEMENT



TYPICAL TANGENT SECTION CURB AND GUTTER DRIVEWAY @ STA. 105+65 ℄ CONST.

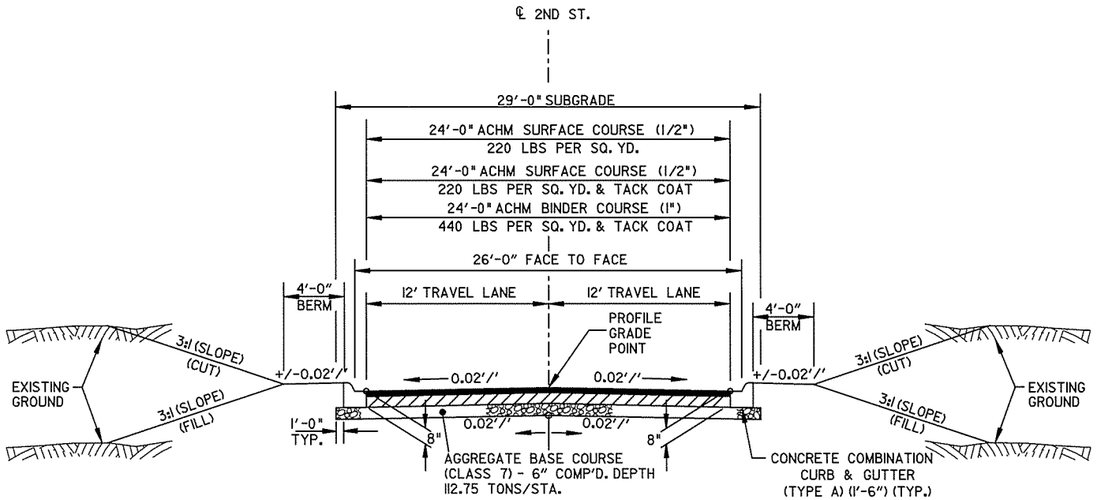
STA. 10+14.00 - STA. 11+61.83

STA. 13+21.01 - STA. 13+69.41



TYPICAL TANGENT SECTION CURB AND GUTTER WITH RETAINING WALL DRIVEWAY @ STA. 105+65 ℄ CONST.

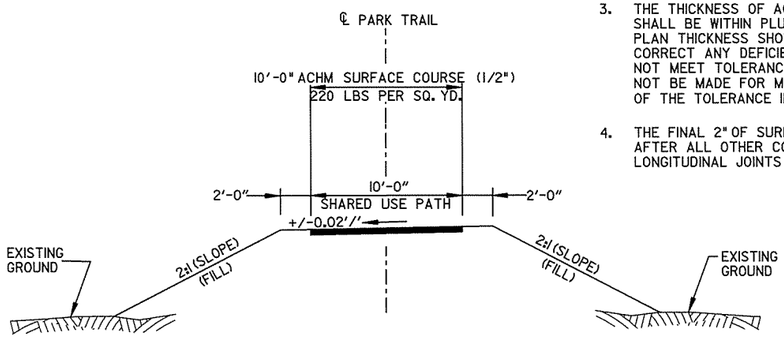
STA. 11+61.83 - STA. 13+21.01



TYPICAL TANGENT SECTION CURB AND GUTTER 2ND STREET

NOTES:

1. REFER TO CROSS SECTIONS FOR DEVIATION FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.
2. ON ALL SUPERELEVATED CURVES AND THROUGH SUPERELEVATED TRANSITIONS (Ls), ALGEBRAIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08%.
3. THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.
4. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.



TYPICAL SHARED USE PATH

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 14517
PAUL ROBBINS
8-13-14

TYPICAL SECTIONS OF IMPROVEMENT

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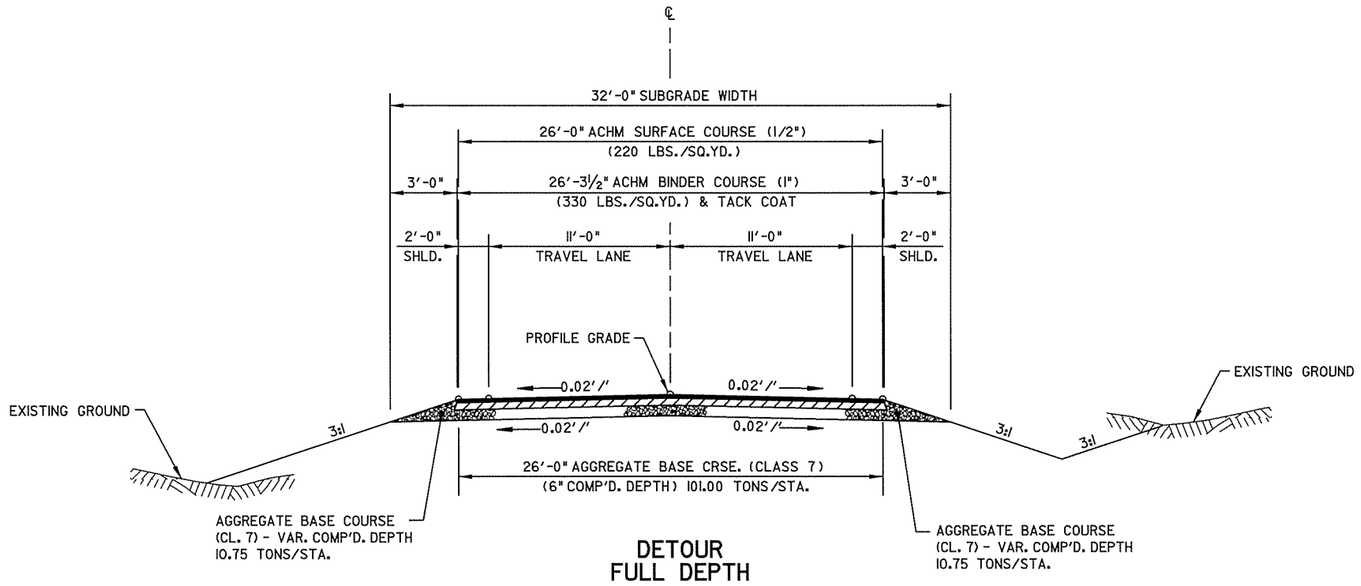
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	8	172

(2) TYPICAL SECTIONS OF IMPROVEMENT



DETOUR
FULL DEPTH

NOTES:

1. REFER TO CROSS SECTIONS FOR DEVIATION FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.
2. THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

STATE OF ARKANSAS
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TYPICAL SECTIONS OF IMPROVEMENT

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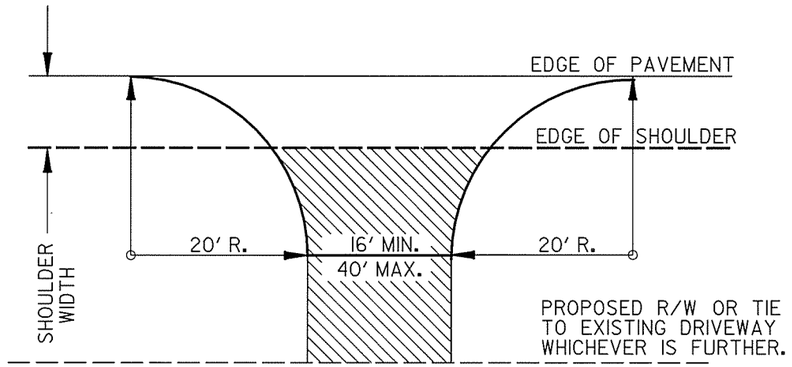
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	9	172

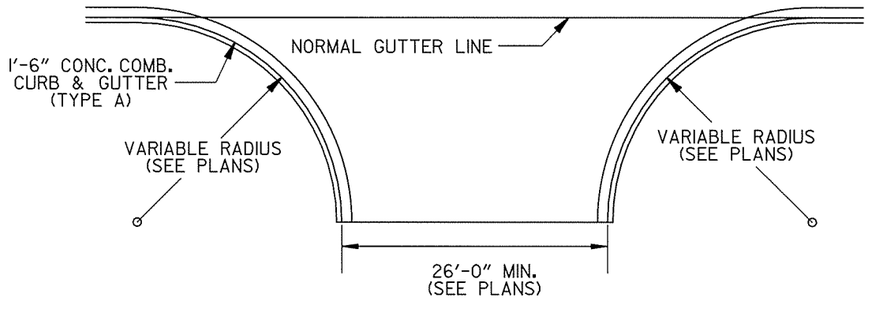
(2) SPECIAL DETAILS



ASPHALT CONCRETE HOT MIX SURFACE COURSE (1/2")(220 LBS. PER SQ. YD.) & AGGREGATE BASE COURSE (CLASS 7) 7" COMP. DEPTH.

DETAIL FOR DRIVEWAY TURNOUTS - OPEN SHOULDER

NOTE: DRIVEWAYS LOCATED WITHIN CURB & GUTTER LOCATIONS SHALL BE CONSTRUCTED ACCORDING TO STANDARD DRAWING DR-1.



DETAIL FOR CITY STREET TURNOUT - CURB & GUTTER

NOTE: PAVEMENT STRUCTURE TO BE THE SAME AS HWY. 51 RELOCATED.

STATE OF ARKANSAS
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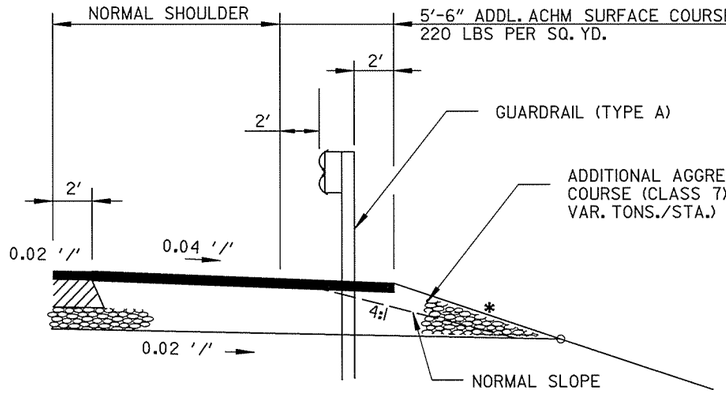
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	10	172

(2) SPECIAL DETAILS



WIDENING FOR GUARDRAIL

NOTE:
REFER TO STD. DWG. GR-9, GR-9A, GR-10, AND GR-10A FOR ADDITIONAL INFORMATION

* NOTE:
REFER TO STD. DWG. GR-9A AND CROSS SECTIONS FOR SLOPE REQUIREMENTS BEHIND GUARDRAIL.

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SPECIAL DETAILS

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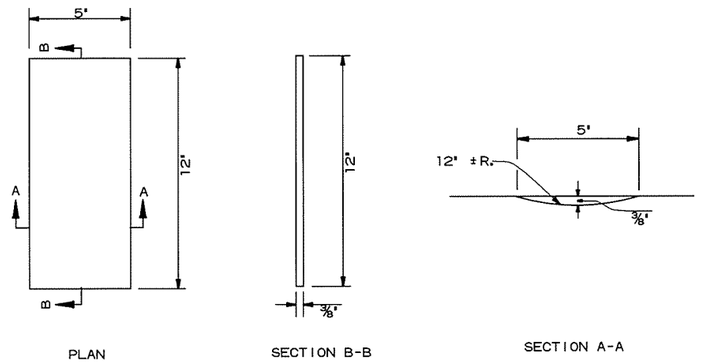
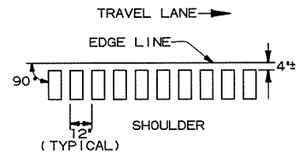
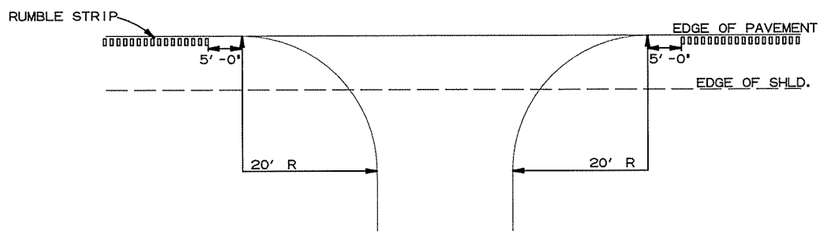
12/1/14				6	ARK.			
				JOB NO.		070240	II	172
				(2)	SPECIAL DETAILS			



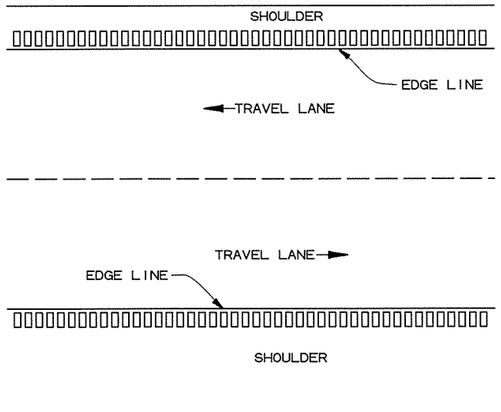
DETAILS OF RUMBLE STRIPS



LOCATION PLAN OF RUMBLE STRIPS
LEFT OR RIGHT SHOULDER



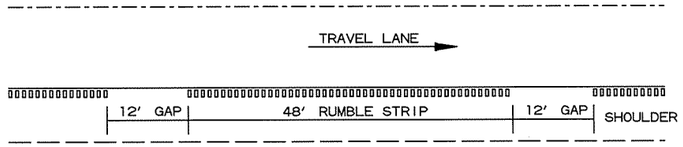
DETAIL FOR RUMBLE STRIP GAP
AT DRIVEWAY TURNOUTS



PLAN VIEW

GENERAL NOTES

1. RUMBLE STRIPS SHALL NOT BE INSTALLED ON CURB SECTIONS, BRIDGE DECKS, APPROACH SLABS, INTERSECTING STREETS OR ROADWAYS, RESIDENTIAL OR COMMERCIAL DRIVEWAYS OR ACROSS TRANSVERSE JOINTS OF CONCRETE SHOULDERS.
2. RUMBLE STRIPS SHALL NOT BE INSTALLED ON A PAVED SHOULDER THAT IS USED AS A DECELERATION LANE FOR THE LENGTH DEEMED APPROPRIATE BY THE ENGINEER.
3. THE 4" OFFSET FROM THE EDGE LINE MAY BE INCREASED TO AVOID LONGITUDINAL JOINTS. IN ALL CASES, THE LATERAL DEVIATION FROM THE PLANNED OFFSET SHOULD BE KEPT TO A MINIMUM.
4. RUMBLE STRIPS SHALL BE MEASURED BY THE LINEAR FOOT LONGITUDINALLY ALONG THE SHOULDER. PAYMENT SHALL ONLY INCLUDE THAT PORTION OF THE SHOULDER ON WHICH RUMBLE STRIPS HAVE BEEN CONSTRUCTED. NO MEASUREMENT OR PAYMENT WILL BE MADE FOR GAPS, DRIVEWAYS, TURNOUTS, OR OTHER PUBLIC ROAD INTERSECTIONS WHERE RUMBLE STRIPS HAVE NOT BEEN CONSTRUCTED.
5. THE 3/8" DEPTH SHALL GENERALLY APPLY FOR THE ENTIRE 12" LENGTH. SOME VARIATION TO SUIT SHOULDER SLOPE BREAKS MAY BE NECESSARY.



NOTE: GAP PATTERN SHALL BE ADJUSTED BY THE ENGINEER IN THE FIELD ALLOWING FOR DRIVEWAYS TO SERVE AS THE GAP.

DETAIL FOR GAP PATTERN RUMBLE STRIP

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PAUL ROBBINS
12-1-14

SPECIAL DETAILS

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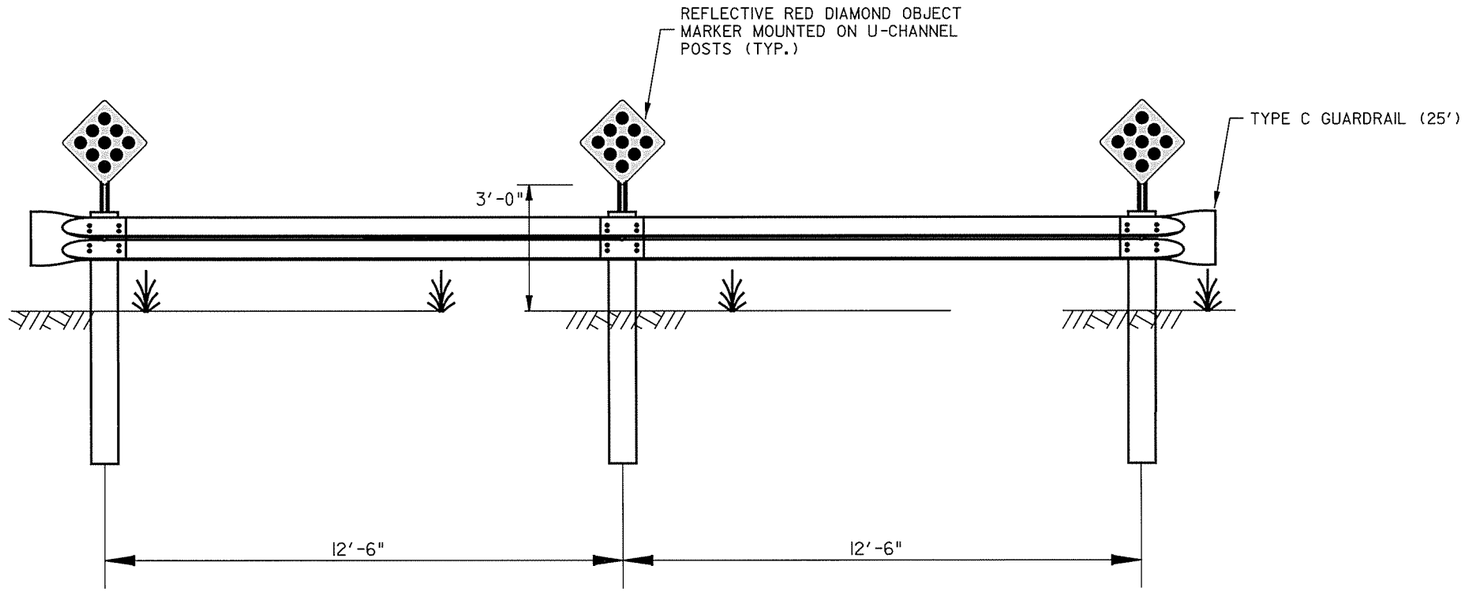
6	ARK.			
JOB NO.		070240	12	172

(2) SPECIAL DETAILS



ROAD CLOSED DETAIL

TO BE USED WHERE EXISTING
ROADS WILL BE PERMANENTLY CLOSED.
SEE PLAN SHEETS FOR LOCATIONS
SEE STD. DWG. GR-7 FOR
MORE DETAILS.

NOTE: RED DIAMOND OBJECT MARKERS, U-CHANNEL POSTS, MOUNTING AND PLACEMENT SHALL NOT BE PAID FOR DIRECTLY, BUT PRICE SHALL BE INCLUDED IN BID PER LIN. FT. FOR "GUARDRAIL (TYPE C)".

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6-13-14

SPECIAL DETAILS

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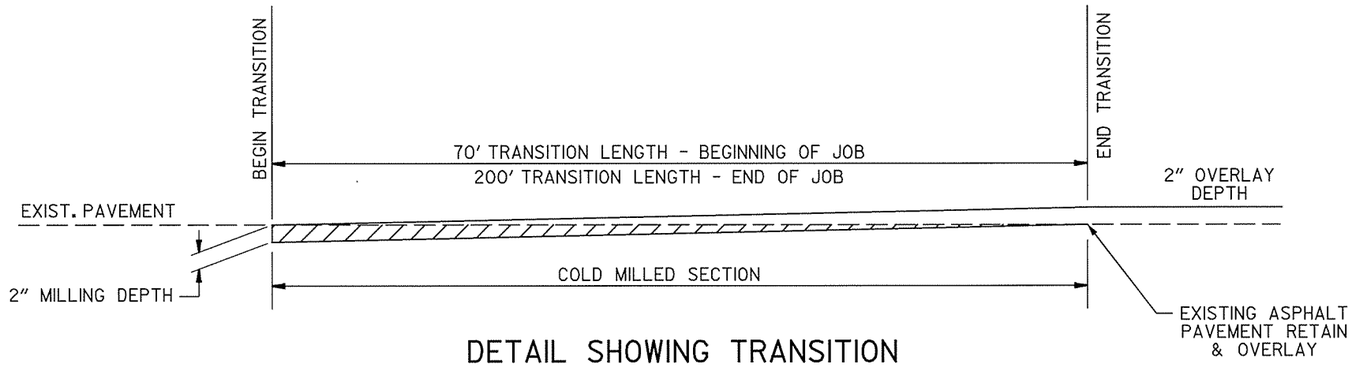
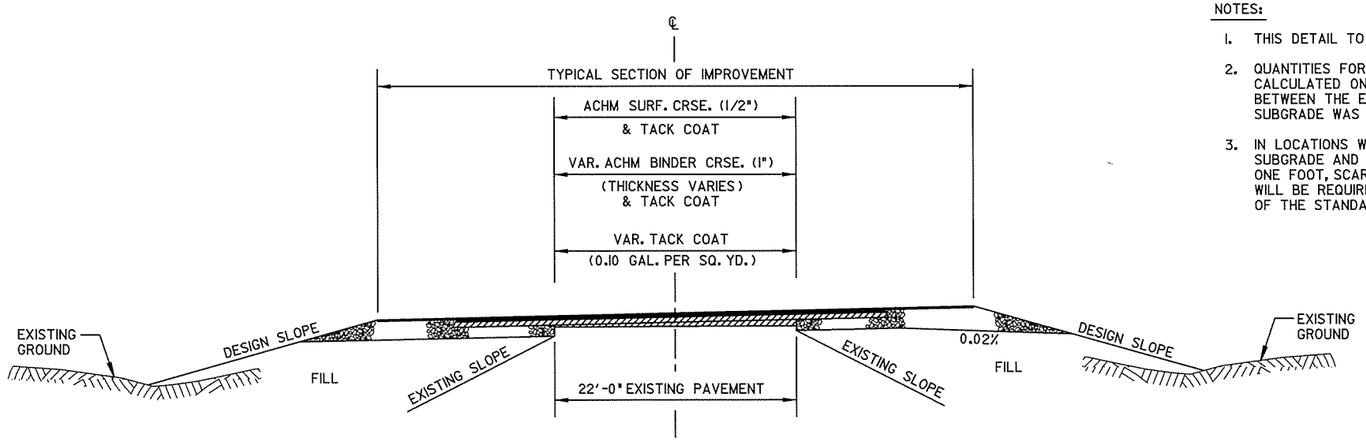
				6	ARK.			
				JOB NO.		070240	13	172
				(2)	SPECIAL DETAILS			



DETAIL SHOWING TRANSITION TO EXISTING PAVEMENT

TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER



METHOD OF RAISING GRADE

NOTES:

1. THIS DETAIL TO BE USED ONLY WHERE DIRECTED BY THE ENGINEER.
2. QUANTITIES FOR METHOD OF GRADE RAISE USING ASPHALT WERE CALCULATED ON THIS PROJECT AT LOCATIONS WHERE THE DISTANCE BETWEEN THE EXISTING ASPHALT ROADWAY AND THE PROPOSED SUBGRADE WAS ONE FOOT OR LESS.
3. IN LOCATIONS WHERE THE DISTANCE BETWEEN THE PROPOSED SUBGRADE AND THE EXISTING ASPHALT ROADWAY IS MORE THAN ONE FOOT, SCARIFICATION OF THE EXISTING ASPHALT ROADWAY WILL BE REQUIRED AS STATED IN SECTION 210, SUBSECTION 210.09, OF THE STANDARD SPECIFICATIONS, EDITION OF 2014.

STATE OF ARKANSAS
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PAUL ROBBINS

8-13-14

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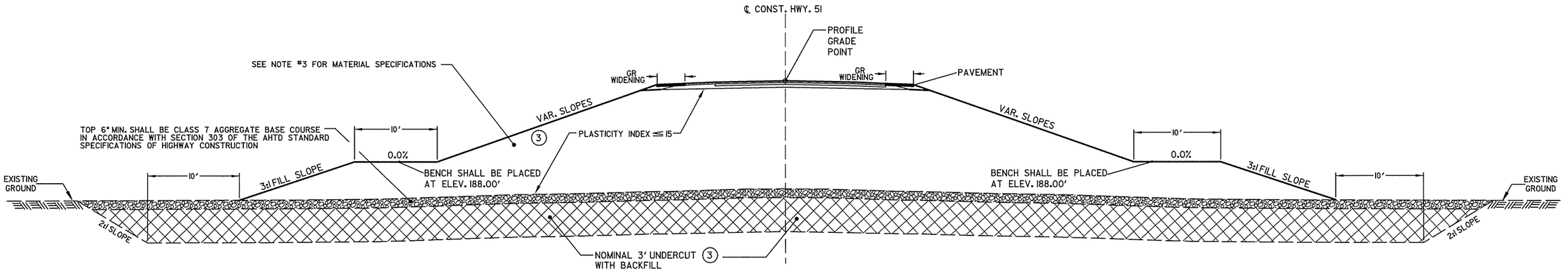
				6	ARK.			
				JOB NO.		070240	13A	172

(2) SPECIAL DETAILS



TYPICAL EMBANKMENT SECTION WITH UNDERCUT AND BACKFILL

EXISTING AREAS REQUIRING UNDERCUT AND BACKFILL WITH EMBANKMENT

STATION	STATION
124+85	128+00

NOTE: AREA MAY NEED TO BE INCREASED DEPENDING UPON SEASONAL CONDITIONS IF AND WHERE BY THE ENGINEER.

NOTES:

1. SOIL CHARACTERISTICS SHOWN IN SOIL BORINGS AND PRESENTED IN THESE PLANS AND CROSS SECTIONS ARE REPRESENTATIVE AT THE LOCATIONS OF THE VARIOUS SAMPLES AND FROM SURFACE INDICATIONS ARE TYPICAL FOR THE LIMITS SHOWN. THE STATE WILL NOT BE RESPONSIBLE FOR VARIATIONS IN THE SOIL CHARACTERISTICS.
2. REFER TO CROSS SECTIONS FOR DEVIATIONS FROM NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.
3. REFER TO SPECIAL PROVISION - "EXCAVATION AND EMBANKMENT" FOR ADDITIONAL INFORMATION.

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 14517 PAUL ROBBINS

8-13-14

SPECIAL DETAILS

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				6	ARK.			
				JOB NO.		070240	14	172

② TEMPORARY EROSION CONTROL DETAILS

115+00 120+00 125+00 45+00

UNION PACIFIC RAILROAD

EXIST. U.P.R.R. R.O.W.
CONST. LIMITS (BY OTHERS)
PROP. R.O.W.
P.C.E.
EXIST. ROW
EXIST. P.C.E.
EXIST. HWY. 51
PROP.
℄ ACCESS RD.
℄ ACCESS RD. PT
℄ ACCESS RD. PI
℄ CONST.
GRADE TO DRAIN
PAVED
S 84°16'09" E
S 48°54'16" E
S 84°16'

+74.06 40.00
+49.50 40.00
+93.22 40.00
+40.77 40.00
+66.91 40.00
+10.64 40.00
+34.06 273.31
+65.00 206.41
+70.87 196.73
+50.00 170.00
+36.45 161.61
+12.07 148.35
+65.00 40.00
+00
+15
+75
+50
+43.67 238.32
+70.00 306.00
+50.00 240.00
+65.00 40.00
+20.00 145.00

EROSION CONTROL LEGEND

E-5	SAND BAG DITCH CHECK
E-11	SILT FENCE

REVISIONS

DATE	DESCRIPTION

STA. 137+03.60 ℄ CONST. HWY. 51
END JOB 070240
ELEV. 184.27'

130+00 135+00 140+00

N 84°16'09" W
S 43°51" W
S 84°16'09" E
S 79°37'37" E
PROP. ROW
PROP. R.O.W.
CONST. LIMITS
EXIST. ROW
EXIST. HWY. 51
℄ ACCESS RD. PC
℄ ACCESS RD. PI
℄ CONST.
℄ STAGE CONST.
℄ CONST. PI
℄ CONST. PC
℄ CONST. PT
PC
PT
PI
+50
+50.00 65.74
+92.93 178.00
+14.82 52.76
+04.30 66.16
+45.45 41.49
+00.00 55.00
+70.00 62.00
+25.00 38.55
WETLANDS
SHED
GRAVEL
6" WATER LINE

STATE OF ARKANSAS
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STAGE I TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	15	172

(2) TEMPORARY EROSION CONTROL DETAILS

STA. 100+99.94
℄ CONST. HWY. 51
BEGIN JOB 070240

HWY. 51 (CADDO ST.)

S 88°46'14"E S 84°16'09"E

℄ CONST. PI

℄ CONST. PC +00

℄ CONST. PT

3RD ST.

100+00

105+00

110+00

S. 2ND ST.

STA. 18+85.00 S. 2ND ST.
BEGIN CONSTRUCTION
ELEV. 229.94'

N 1°37'34" E

QUACHITA RIVER

EXIST. HWY. 51 (BRIDGE)

EXIST. ROW

PROP. R.O.W.

PROP. ROW

T.C.E.

P.C.E.

℄ CONST.

CONST. LIMITS

PROP. R.O.W.

SHED

CANOPY

RESTRAINING CONDITION

REVISIONS

DATE	DESCRIPTION

EROSION CONTROL LEGEND

E-5	SAND BAG DITCH CHECK
E-7	DROP INLET SILT FENCE
E-8	DIVERSION DITCH
E-11	SILT FENCE
E-12	SLOPE DRAIN
	RIPRAP FOR SLOPE DRAIN

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
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PAUL ROBBINS
8-13-14

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	16	172

(2) TEMPORARY EROSION CONTROL DETAILS

EROSION CONTROL LEGEND

E-5	SAND BAG DITCH CHECK
E-8	DIVERSION DITCH
E-11	SILT FENCE
E-12	SLOPE DRAIN
	RIPRAP FOR SLOPE DRAIN

REVISIONS

DATE	DESCRIPTION

115+00 120+00 125+00 130+00 135+00 140+00 145+00

UNION PACIFIC RAILROAD

EXIST. U.P.R.R. R.O.W.

TELEPHONE LINE

EXIST. U.P.R.R. R.O.W.

PROP. R.O.W.

EXIST. ROW

EXIST. P.C.E.

P.C.E.

PROP. R.O.W.

S 84°16'09" E

S 48°54'16" E

S 79°37'37" E

N 84°16'09" W

+74.06 40.00

+49.50 40.00

+93.22 40.00

+40.77 40.00

+66.91 40.00

+10.64 40.00

+34.06 273.31

+65.00 206.41

+70.87 196.73

+50.00 170.00

+36.45 161.61

+12.07 148.35

+65.00 40.00

+70.00 306.00

+43.67 238.32

+50.00 240.00

+92.93 178.00

+50.00 65.74

+14.82 52.76

+04.30 66.16

+45.45 41.49

+00.00 55.00

+70.00 62.00

+25.00 38.55

+20.00 145.00

℄ CONST.

℄ ACCESS RD.

℄ ACCESS RD. PC

℄ ACCESS RD. PI

℄ ACCESS RD. PT

℄ STAGE CONST.

℄ CONST. PC

℄ CONST. PI

℄ CONST. PT

EXIST. HWY. 51

CONST. LIMITS

GRADE TO DRAIN

PAVED

SHED

GRAVEL

6" WATER LINE

STA. 137+03.60 ℄ CONST. HWY. 51
END JOB 070240
ELEV. 184.27'

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 14517
PAUL ROBBINS
9-13-14

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	17	172

(2) TEMPORARY EROSION CONTROL DETAILS

STA. 100+99.94
℄ CONST. HWY. 51
BEGIN JOB 070240

STA. 18+85.00 S. 2ND ST.
BEGIN CONSTRUCTION
ELEV. 229.94'

REVISIONS

DATE	DESCRIPTION

EROSION CONTROL LEGEND

(E-6)	SAND BAG DITCH CHECK
(E-7)	DROP INLET SILT FENCE
• —— (E-11) —— •	SILT FENCE

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 14517
PAUL ROBBINS
8-13-14

STAGE 3
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	18	172

2 TEMPORARY EROSION CONTROL DETAILS

EROSION CONTROL LEGEND

(E-5)	SAND BAG DITCH CHECK
• —— (E-11) —— •	SILT FENCE

REVISIONS

DATE	DESCRIPTION

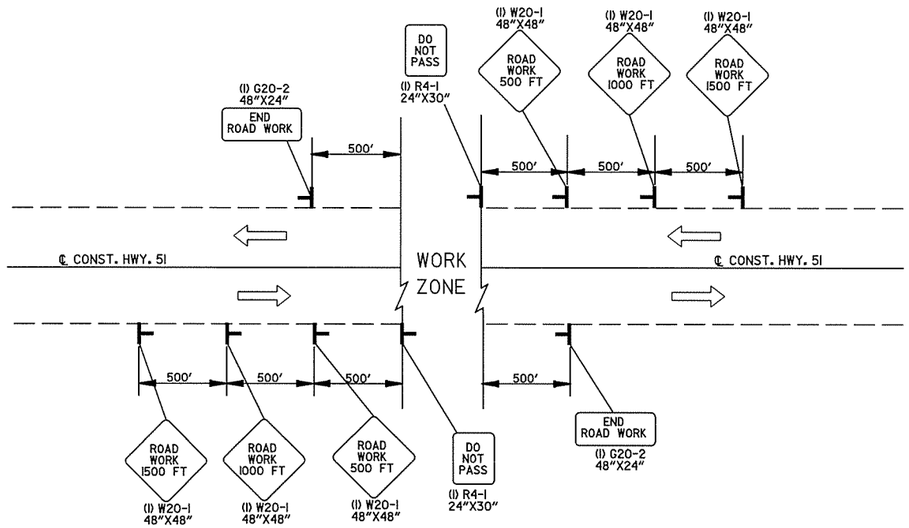
STA. 137+03.60 ℄ CONST. HWY. 51
END JOB 070240
ELEV. 184.27'

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 14517
PAUL ROBBINS
8-13-14

STAGE 3 TEMPORARY EROSION CONTROL DETAILS

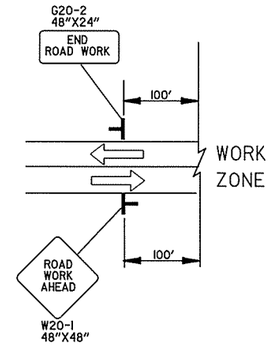
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	19	172

(2) MAINTENANCE OF TRAFFIC DETAILS



ADVANCE WARNING SIGNS AT BEGIN AND END WORK ZONES

NOTE: ADVANCE WARNING SIGNS AND DEVICES SHOWN ARE TYPICAL FOR ALL STAGES OF CONSTRUCTION. COORDINATION MUST BE MAINTAINED WITH OTHER CONSTRUCTION ACTIVITIES REQUIRING ADVANCE WARNING SIGNS. SIGN LOCATIONS AND TYPES ARE TO BE MODIFIED WHEN ADDITIONAL SIGNS ARE REQUIRED FOR CHANNELIZATION, SHIFTS, OR CLOSURES AS REQUIRED FOR VARIOUS STAGES. SIGNS TO REMAIN IN PLACE UNTIL ALL STAGES ARE COMPLETE.



ADVANCE WARNING SIGNS AT WORK ZONES ON SIDE STREETS

W20-1
(48" X 48")

S. 2ND ST.
S. 3RD ST.
WITHERSPOON RD.

END
ROAD WORK

G20-2
(48" X 24")

S. 2ND ST.
S. 3RD ST.
WITHERSPOON RD.

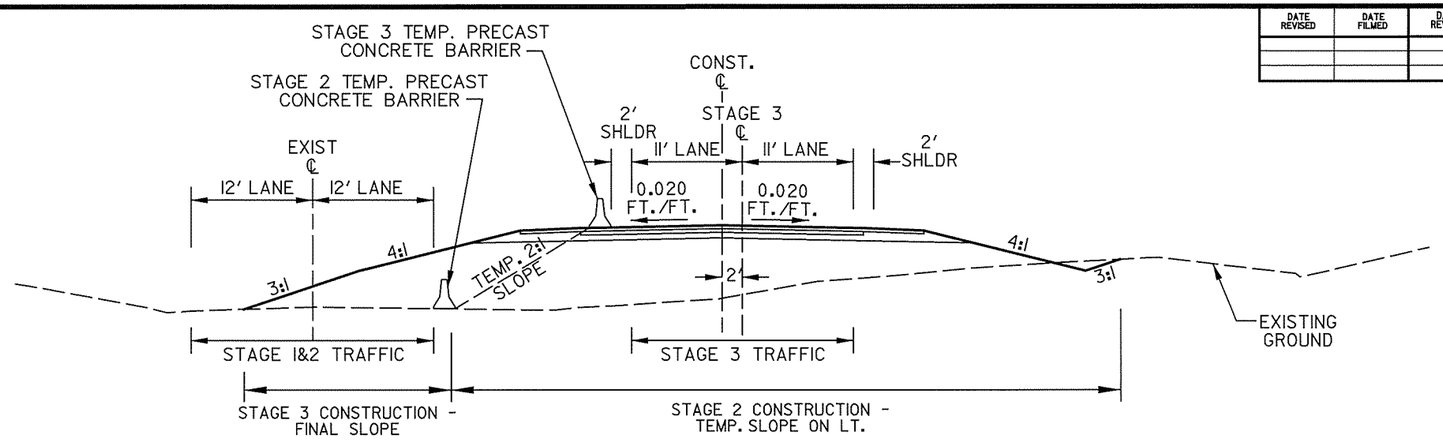
8-13-14

ALL STAGES
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

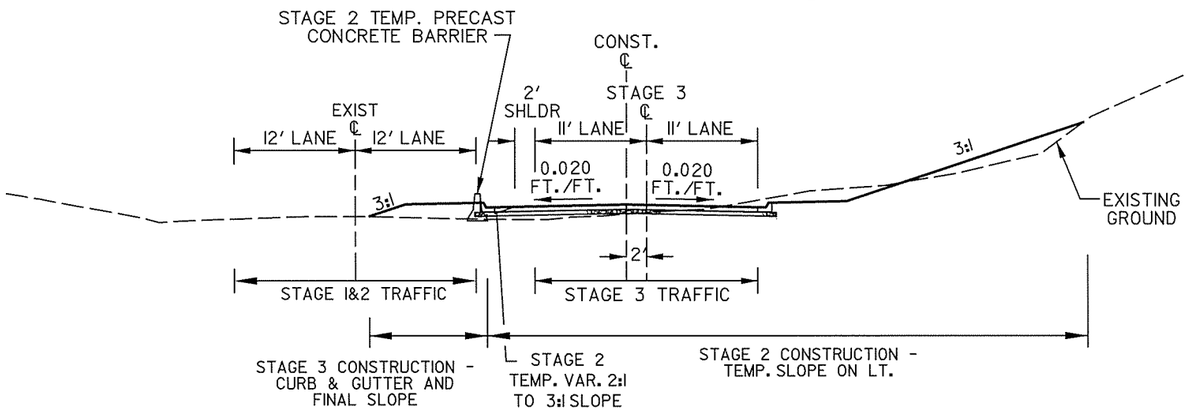
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		070240	20	172

(2) MAINTENANCE OF TRAFFIC DETAILS



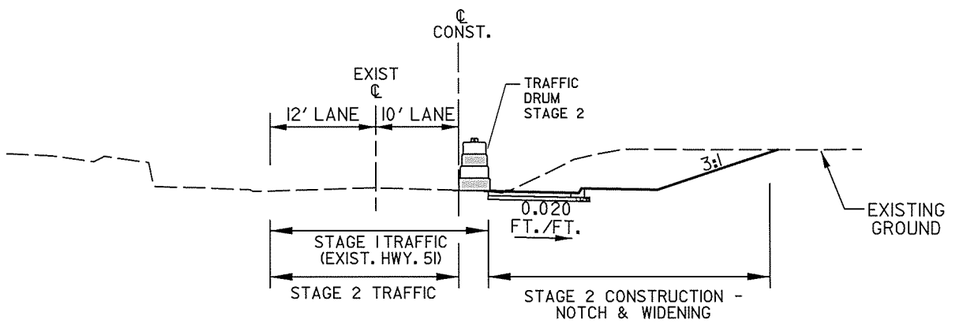
STAGE CONSTRUCTION DETAIL

℄ CONST. STA. 106+80.00 TO STA. 109+45.58



STAGE CONSTRUCTION DETAIL

℄ CONST. STA. 105+10.00 TO STA. 106+80.00



STAGE 1& 2 CONSTRUCTION DETAIL

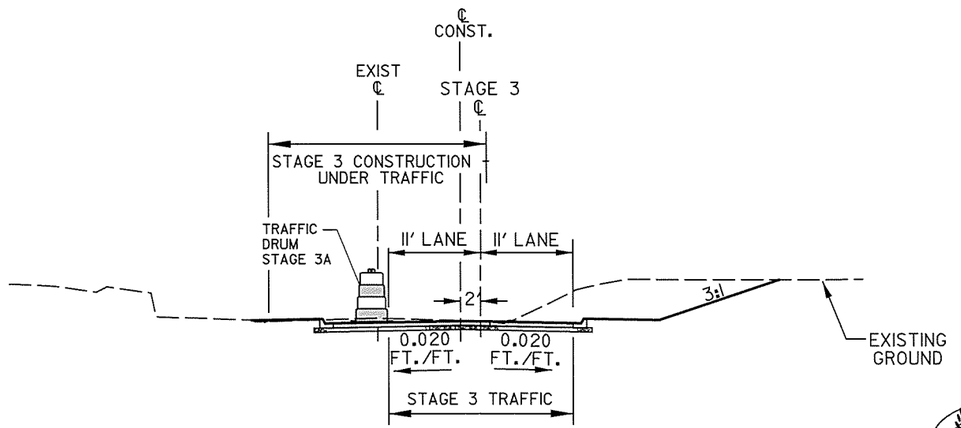
SEQUENCE OF CONSTRUCTION

STAGE 1: WIDEN EXIST. HWY. 51 ALONG STAGE 1 CONST. ALIGNMENT FROM STA. 12+64.66 TO STA. 17+86.48. INSTALL PERMANENT DRAINAGE CULVERT UNDER ACCESS RD. AT STA. 42+60 UNDER TRAFFIC. REMOVE EXIST. DRAINAGE CULVERTS UNDER EXIST. HWY. 51 AND GRADE TO DRAIN UNDER TRAFFIC.

STAGE 2: PLACE TRAFFIC ON EXIST. HWY. 51 & STAGE 1 WIDENING AND INSTALL STAGE 2 PRECAST CONCRETE BARRIER FROM STA. 105+10 TO 109+66 RT. OF EXIST HWY. 51 AND STA. 134+25 TO 137+10 RT. OF EXIST. HWY. 51. WIDEN EXIST. HWY. 51 FROM STA. 101+00 TO STA. 105+10. CONSTRUCT HWY. 51 RELOC. INCLUDING BRIDGE STRUCTURE FROM STA. 105+10 TO STA. 135+00. CONSTRUCT RETAINING WALL FROM STA. 108+00 LT. TO STA. 109+23 RT. INSTALL TYPE "A" GUARDRAIL STA. 107+10.97 TO STA. 109+29.72 RT. AND STA. 125+93.48 TO STA. 126+87.23 RT. OF ℄ CONST. CONSTRUCT 2ND ST. CONNECTION UNDER TRAFFIC. CONSTRUCT ACCESS RD. FROM STA. 43+77 TO STA. 49+40.

STAGE 3A: REMOVE ALL STAGE 2 PRECAST CONCRETE BARRIER AND INSTALL STAGE 3 PRECAST CONCRETE BARRIER STA. 106+62 TO 109+90 LT. OF ℄ CONST. & STA. 125+00 TO 129+00 LT. OF ℄ CONST. MOVE TRAFFIC TO RELOC. HWY. 51 WITH LANE SHIFTS AS SHOWN AND CONSTRUCT TEMP. DRIVE TO KEEP ACCESS OPEN TO DRIVEWAY AT STA. 105+65 LT. ℄ CONST. CONSTRUCT REMAINING TIES & TRANSITIONS UNDER TRAFFIC. CONSTRUCT RETAINING WALL FROM STA. 106+80 LT. TO STA. 108+00 LT. REMOVE STAGE 1 CONSTRUCTION WIDENING AND OBLITERATE EXIST. PAVEMENT. CONSTRUCT PARK TRAIL TO EXIST. HWY. 51 BRIDGE. INSTALL TYPE "A" GUARDRAIL STA. 106+82.56 TO STA. 109+01.31 LT. AND STA. 125+93.48 TO STA. 128+12.23 LT. OF ℄ CONST. AND TYPE "C" GUARDRAIL (AS SHOWN).

STAGE 3B: REMOVE ALL TEMPORARY PRECAST BARRIERS AND PLACE FINAL ACHM SURFACE COURSE. INSTALL PERMANENT PAVEMENT MARKINGS.



STAGE 3 CONSTRUCTION DETAIL

STATE OF ARKANSAS
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℄ CONST. STA. 100+99.94 TO STA. 105+10.00

ALL STAGES MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	21	172

(2) MAINTENANCE OF TRAFFIC DETAILS

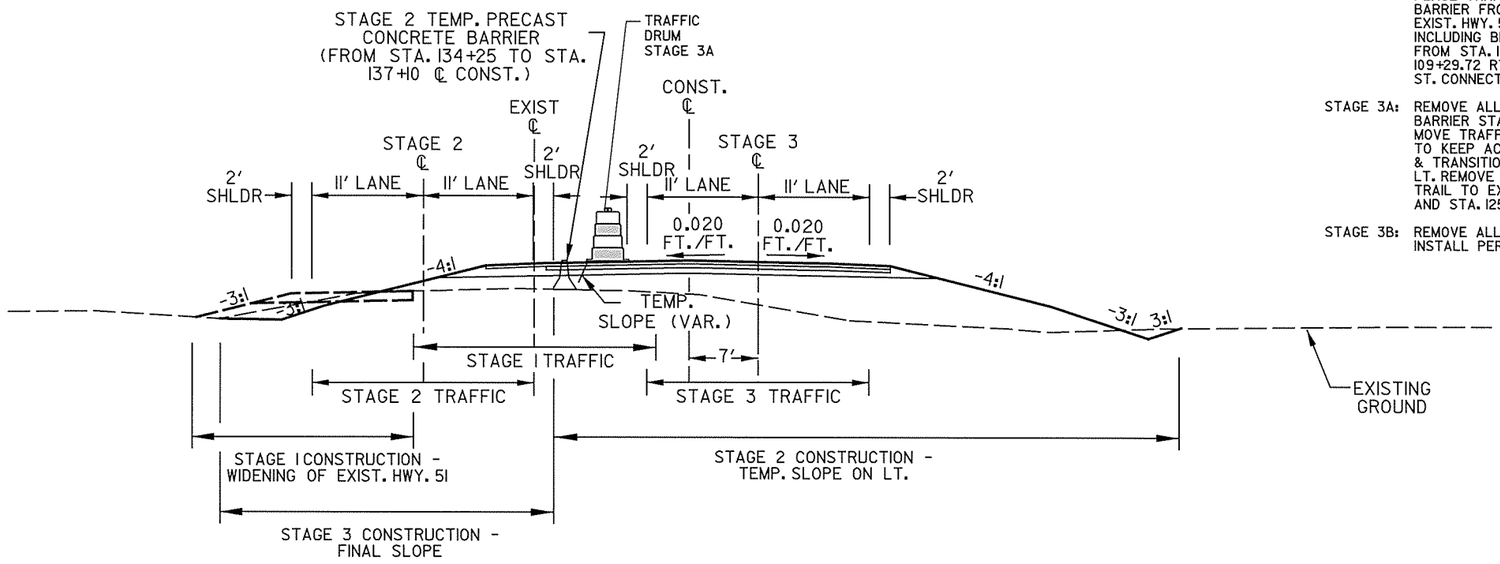
SEQUENCE OF CONSTRUCTION

STAGE 1: WIDEN EXIST. HWY. 51 ALONG STAGE 1 CONST. ALIGNMENT FROM STA. 12+64.66 TO STA. 17+86.48. INSTALL PERMANENT DRAINAGE CULVERT UNDER ACCESS RD. AT STA. 42+60 UNDER TRAFFIC. REMOVE EXIST. DRAINAGE CULVERTS UNDER EXIST. HWY. 51 AND GRADE TO DRAIN UNDER TRAFFIC.

STAGE 2: PLACE TRAFFIC ON EXIST. HWY. 51 & STAGE 1 WIDENING AND INSTALL STAGE 2 PRECAST CONCRETE BARRIER FROM STA. 105+10 TO 109+66 RT. OF EXIST HWY. 51 AND STA. 134+25 TO 137+10 RT. OF EXIST. HWY. 51. WIDEN EXIST. HWY. 51 FROM STA. 101+00 TO STA. 105+10. CONSTRUCT HWY. 51 RELOC. INCLUDING BRIDGE STRUCTURE FROM STA. 105+10 TO STA. 135+00. CONSTRUCT RETAINING WALL FROM STA. 108+00 LT. TO STA. 109+23 RT. INSTALL TYPE "A" GUARDRAIL STA. 107+10.97 TO STA. 109+29.72 RT. AND STA. 125+93.48 TO STA. 126+87.23 RT. OF ℄ CONST. CONSTRUCT 2ND ST. CONNECTION UNDER TRAFFIC. CONSTRUCT ACCESS RD. FROM STA. 43+77 TO STA. 49+40.

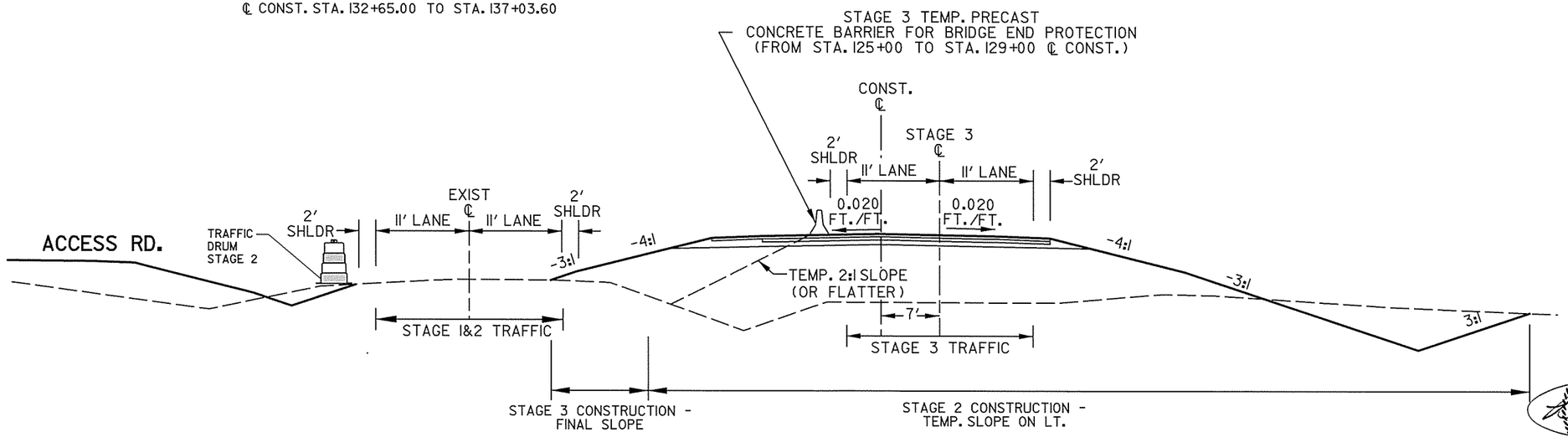
STAGE 3A: REMOVE ALL STAGE 2 PRECAST CONCRETE BARRIER AND INSTALL STAGE 3 PRECAST CONCRETE BARRIER STA. 106+62 TO 109+90 LT. OF ℄ CONST. & STA. 125+00 TO 129+00 LT. OF ℄ CONST. MOVE TRAFFIC TO RELOC. HWY. 51 WITH LANE SHIFTS AS SHOWN AND CONSTRUCT TEMP. DRIVE TO KEEP ACCESS OPEN TO DRIVEWAY AT STA. 105+65 LT. ℄ CONST. CONSTRUCT REMAINING TIES & TRANSITIONS UNDER TRAFFIC. CONSTRUCT RETAINING WALL FROM STA. 106+80 LT. TO STA. 108+00 LT. REMOVE STAGE 1 CONSTRUCTION WIDENING AND OBLITERATE EXIST. PAVEMENT. CONSTRUCT PARK TRAIL TO EXIST. HWY. 51 BRIDGE. INSTALL TYPE "A" GUARDRAIL STA. 106+82.56 TO STA. 109+01.31 LT. AND STA. 125+93.48 TO STA. 128+12.23 LT. OF ℄ CONST. AND TYPE "C" GUARDRAIL (AS SHOWN).

STAGE 3B: REMOVE ALL TEMPORARY PRECAST BARRIERS AND PLACE FINAL ACHM SURFACE COURSE. INSTALL PERMANENT PAVEMENT MARKINGS.



STAGE CONSTRUCTION DETAIL

℄ CONST. STA. 132+65.00 TO STA. 137+03.60



STAGE CONSTRUCTION DETAIL

℄ CONST. STA. 125+75.10 TO STA. 132+65.00

STATE OF ARKANSAS
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ALL STAGES
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	22	172

(2) MAINTENANCE OF TRAFFIC DETAILS

STA. 41+14.37 ℄ ACCESS RD.
BEGIN CONSTRUCTION
ELEV. 179.91'

STA. 42+60 ℄ ACCESS RD. CONSTRUCT
TRI. 48" X 80' R.C. PIPE CULVERT
WITH FES LT. & RT. @ 60° LT. FWD. SKEW
Q25 = 563 CFS D.A. = 978 ACRES
R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 80 LIN. FT.

STA. 127+09 ℄ CONST. - IN PLACE
TRI. 48" X 70' C.M. PIPE CULVERT 94' LT.
REMOVE

SEQUENCE OF CONSTRUCTION

STAGE I: WIDEN EXIST. HWY. 51 ALONG STAGE I CONST. ALIGNMENT FROM STA. 12+64.66 TO STA. 17+86.48.
INSTALL PERMANENT DRAINAGE CULVERT UNDER ACCESS RD. AT STA. 42+60 UNDER TRAFFIC.
REMOVE EXIST. DRAINAGE CULVERTS UNDER EXIST. HWY. 51 AND GRADE TO DRAIN UNDER TRAFFIC.

CURVE #2
P.I. = 15+48.60
N = 1843008.8110
E = 998045.2169
DELTA = 11°26'42" LT.
DOC = 8°00'00"
T = 71.77'
L = 143.06'
R = 716.20'
E = 3.59'
P.C. = 14+76.83
P.T. = 16+19.89
e = NA
Ls = NA

STA. 137+03.60 ℄ CONST. HWY. 51 RELOC.
END JOB 070240
ELEV. 184.27'

+70.00 306.00
+43.67 238.32
PROP. ROW
+50.00 240.00
GRADE TO DRAIN
S 48°54'16" W
45+00
℄ ACCESS RD. PT
PROP. ROW
EXIST. ROW
S 84°16'09" E
+92.83 178.00
℄ ACCESS RD. PC
℄ ACCESS RD. PI
+65.00 40.00
EXIST. HWY. 51
S 5°43'51" W
+50.00 65.74
PT
PC
TRAFFIC DRUMS @ 20' SPACING - 28 TOTAL - STAGE I
CONST. LIMITS
+14.82 52.76
PI
+04.30 66.16
℄ CONST. PC
(1) RSP-I (48" X 30")
SHOULDER CLOSED
500'
PT
PROP. R.O.W.
+45.45 41.49
S 84°16'09" E
S 79°37'37" E
EXIST. ROW
EXIST. HWY. 51
℄ CONST.
+65.00 40.00
+20.00 145.00
PROP. R.O.W.
℄ STAGE CONST.
PI
PC
+00.00 55.00
℄ CONST. PC
PT
PI
℄ CONST. PT
+70.00 62.00
+25.00 38.55
EXIST. ROW
125+00
130+00
15+00
135+00

CURVE #1
P.I. = 12+97.32
N = 1843031.0232
E = 997794.8726
DELTA = 5°13'17" RT.
DOC = 8°00'00"
T = 32.66'
L = 65.27'
R = 716.20'
E = 0.74'
P.C. = 12+64.66
P.T. = 13+29.93
e = NA
Ls = NA

CURVE #3
P.I. = 17+48.12
N = 1842951.9565
E = 998236.9656
DELTA = 6°08'32" RT.
DOC = 8°00'00"
T = 38.43'
L = 76.78'
R = 716.20'
E = 1.03'
P.C. = 17+09.70
P.T. = 17+86.48
e = NA
Ls = NA

REMOVAL OF PERMANENT PAVEMENT MARKINGS:

℄ CONST. STA. 132+36 TO STA. 136+53 LT. HWY. 51 WHITE EDGE LINE = 417 LIN. FT.
℄ CONST. STA. 131+85 TO STA. 137+04 ℄ HWY. 51 DOUBLE YELLOW LINES = 1040 LIN. FT.

LEGEND

- WORK AREA
- TRAFFIC FLOW
- TRAFFIC DRUM
- TYPE III BARRICADE

CONSTRUCTION PAVEMENT MARKINGS:

℄ CONST. STA. 132+36 TO STA. 136+53 LT. & RT. HWY. 51 WHITE EDGE LINE = 844 LIN. FT.
℄ CONST. STA. 131+85 TO STA. 137+04 ℄ HWY. 51 DOUBLE YELLOW LINES = 1044 LIN. FT.

NOTE:
SEE MAINTENANCE OF TRAFFIC ADVANCE WARNING SIGNS AND TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.

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PAUL ROBBINS
8-13-14

STAGE I
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		070240	23	172

(2) **MAINTENANCE OF TRAFFIC DETAILS**

℄ CONST. HWY. 51
P.I. = 101+75.00
N = 1843303.6103
E = 994764.5232
DELTA = 4°30'05" RT.
DOC = 3°00'00"
T = 75.06'
L = 150.05'
R = 1909.86'
E = 1.47'
P.C. = 100+99.94
P.T. = 102+49.99
e = NA
Ls = NA

SEQUENCE OF CONSTRUCTION

STAGE 2: PLACE TRAFFIC ON EXIST. HWY. 51 & STAGE I WIDENING AND INSTALL STAGE 2 PRECAST CONCRETE BARRIER FROM STA. 105+10 TO 109+66 RT. OF EXIST HWY. 51 AND STA. 134+25 TO 137+10 RT. OF EXIST. HWY. 51.
WIDEN EXIST. HWY. 51 FROM STA. 101+00 TO STA. 105+10.
CONSTRUCT HWY. 51 RELOC. INCLUDING BRIDGE STRUCTURE FROM STA. 105+10 TO STA. 135+00.
CONSTRUCT RETAINING WALL FROM STA. 108+00 LT. TO STA. 109+23 RT.
INSTALL TYPE "A" GUARDRAIL STA. 107+10.97 TO STA. 109+29.72 RT. AND STA. 125+93.48 TO STA. 126+87.23 RT. OF ℄ CONST.
CONSTRUCT 2ND ST. CONNECTION UNDER TRAFFIC.
CONSTRUCT ACCESS RD. FROM STA. 43+77 TO STA. 49+40.

STAGE 2
FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER
℄ CONST. STA. 105+10 TO STA. 109+66
RT. EXIST. HWY. 51 = 456 LIN. FT.

STA. 100+99.94
℄ CONST. HWY. 51
BEGIN JOB 070240

℄ CONST. PI
℄ CONST. PC
℄ CONST. PT
℄ CONST.
HWY. 51 (CADDO ST.)
3RD ST.
S. 2ND ST.
1ST ST.
EXIST. HWY. 51 (BRIDGE)
OUACHITA RIVER
EXIST. ROW
CONST. LIMITS
PROP. R.O.W.
PROP. ROW
PROP. SS FOR APTS
8" CLAY SS
8" STEEL SS
BUILDING - A
BUILDING - B
BUILDING - C
PARK
T.C.E.
P.C.E.
S 88°46'14" E
S 84°16'09" E
N 1°37'34" E

ROAD CLOSED
(I) RII-2 (48" X 30")
(I) 8' BARR. TYP. III RT.
(I) 8' BARR. TYP. III LT.

WARNING! BRIDGE CONSTRUCTION FOLLOW MARKED NAVIGATION CHANNEL SLOW NO WAKE
(I) SP-1 (60" X 36")

WARNING! BRIDGE CONSTRUCTION OUACHITA RIVER HIGHWAY 51 FOLLOW MARKED NAVIGATION CHANNEL
(I) SP-2 (60" X 36")

SPECIAL END UNIT (SEE STD. DRAWING TC-5 FOR ADDITIONAL INFORMATION)

TRAFFIC DRUMS @ 20' SPACING - 39 TOTAL - STAGE 2

STAGE 2 TEMP. PRECAST CONCRETE BARRIER

STA. 18+85.00 ℄ S. 2ND ST.
BEGIN CONSTRUCTION
ELEV. 229.94'

RESTRAINING CONDITION

LEGEND

- WORK AREA
- TRAFFIC FLOW
- TRAFFIC DRUM
- TYPE III BARRICADE

REMOVAL OF PERMANENT PAVEMENT MARKINGS:

℄ CONST. STA. 101+00 TO STA. 104+83 LT. HWY. 51 WHITE EDGE LINE = 383 LIN. FT.
℄ CONST. STA. 101+00 TO STA. 103+28 ℄ HWY. 51 DOUBLE YELLOW LINES = 456 LIN. FT.

CONSTRUCTION PAVEMENT MARKINGS:

℄ CONST. STA. 101+00 TO STA. 109+46 SOLID SKIP YELLOW = 210 LIN. FT.

REMOVABLE CONSTRUCTION PAVEMENT MARKINGS:

℄ CONST. STA. 109+46 TO STA. 125+75 SOLID SKIP YELLOW = 410 LIN. FT.

NOTE:
SEE MAINTENANCE OF TRAFFIC ADVANCE WARNING SIGNS AND TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.

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STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	24	172

(2) MAINTENANCE OF TRAFFIC DETAILS

AR GAME & FISH ACCESS

WARNING! BRIDGE CONSTRUCTION FOLLOW MARKED NAVIGATION CHANNEL SLOW NO WAKE

(1) SP-1 (60" X 36")

INSTALL AT AR GAME AND FISH ACCESS RAMP

WITHERSPOON ROAD

EXIST. HWY. 51

EXIST. ROW

EXIST. P.C.E.

SHOULDER CLOSED

(1) RSP-1 (48" X 30")

STA. 41+14.37 ℄ ACCESS RD.
BEGIN CONSTRUCTION
ELEV. 179.91'

℄ ACCESS RD.
P.I. = 42+97.03
N = 1843193.5560
E = 997163.0386
DELTA = 35°21'53" LT.
DOC = 10°00'00"
T = 182.66'
L = 353.65'
R = 572.96'
E = 28.41'
P.C. = 41+14.37
P.T. = 44+68.02
e = 0.094 FT./FT.
Ls = 250'

SEQUENCE OF CONSTRUCTION

STAGE 2: PLACE TRAFFIC ON EXIST. HWY. 51 & STAGE 1 WIDENING AND INSTALL STAGE 2 PRECAST CONCRETE BARRIER FROM STA. 105+10 TO 109+66 RT. OF EXIST HWY. 51 AND STA. 134+25 TO 137+10 RT. OF EXIST. HWY. 51.
WIDEN EXIST. HWY. 51 FROM STA. 101+00 TO STA. 105+10.
CONSTRUCT HWY. 51 RELOC. INCLUDING BRIDGE STRUCTURE FROM STA. 105+10 TO STA. 135+00.
CONSTRUCT RETAINING WALL FROM STA. 108+00 LT. TO STA. 109+23 RT.
INSTALL TYPE "A" GUARDRAIL STA. 107+10.97 TO STA. 109+29.72 RT. AND STA. 125+93.48 TO STA. 126+87.23 RT. OF ℄ CONST.
CONSTRUCT 2ND ST. CONNECTION UNDER TRAFFIC.
CONSTRUCT ACCESS RD. FROM STA. 43+77 TO STA. 49+40.

TRAFFIC DRUMS @ 20' SPACING - 17 TOTAL - STAGE 2

ROAD CLOSED

(1) R11-2 (48" X 30")

(1) 8' BARR. TYP. III LT.

+70.00 306.00

+43.67 238.32

CONST. LIMITS

PROP. ROW

+50.00 240.00

45+00

℄ ACCESS RD. PI

PROP.

+34.06 273.31

EXIST. U.P.R.R. R.O.W.

UNION PACIFIC RAILROAD

+65.00 206.41

PROP. R.O.W.

+50.00 170.00

+70.87 196.73

EXIST. P.C.E.

+36.45 161.61

+12.07 146.35

TRAFFIC DRUMS @ 20' SPACING - 44 TOTAL - STAGE 2

+65.00 40.00

S 48°54'16" E

QUACHITA RIVER

+74.06 40.00

P.C.E.

PROP. R.O.W.

℄ CONST.

+49.50 40.00

+93.22 40.00

S 84°16'09" E

℄ ACCESS RD.

EXIST. ROW

GRADE TO D

EXIST. HWY. 51

EXIST. ROW

WARNING! BRIDGE CONSTRUCTION OUACHITA RIVER HIGHWAY 51 FOLLOW MARKED NAVIGATION CHANNEL

(1) SP-2 (60" X 36")

+40.77 40.00

+66.91 40.00

+10.64 40.00

WARNING! BRIDGE CONSTRUCTION FOLLOW MARKED NAVIGATION CHANNEL SLOW NO WAKE

(1) SP-1 (60" X 36")

115+00

120+00

125+00

+65.00 40.00

+20.00 145.00

CONST. LIMITS

LEGEND

- WORK AREA
- TRAFFIC FLOW
- TRAFFIC DRUM
- TYPE III BARRICADE

REMOVAL OF PERMANENT PAVEMENT MARKINGS:

℄ ACCESS RD. STA. 41+14 TO STA. 43+78 LT. HWY. 51 WHITE EDGE LINE = 264 LIN. FT.
℄ ACCESS RD. STA. 41+14 TO STA. 43+78 ℄ HWY. 51 DOUBLE YELLOW LINES = 528 LIN. FT.

CONSTRUCTION PAVEMENT MARKINGS:

℄ ACCESS RD. STA. 41+14 TO STA. 49+70 SOLID SKIP YELLOW = 210 LIN. FT.

(1) W24-1 (36" X 36")

(1) W13-1 24" X 24"

XX MPH

NOTE:
SEE MAINTENANCE OF TRAFFIC ADVANCE WARNING SIGNS AND TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 14517
PAUL ROBBINS
8-13-14

STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	25	172

(2) MAINTENANCE OF TRAFFIC DETAILS

℄ ACCESS RD.
P.I. = 49+12.92
N = 1843130.8908
E = 997787.4622
DELTA = 90°00'00" RT.
DOC = 57°17'45"
T = 100.00'
L = 157.08'
R = 100.00'
E = 41.42'
P.C. = 48+12.92
P.T. = 49+70.00
e = NA
Ls = NA

℄ CONST. HWY. 51
P.I. = 136+26.27
N = 1842958.9750
E = 998198.6233
DELTA = 4°38'32" RT.
DOC = 3°00'00"
T = 77.41'
L = 154.74'
R = 1909.86'
E = 1.57'
P.C. = 135+48.86
P.T. = 137+03.60
e = 0.057 FT./FT.
Ls = 250'

LEGEND

- WORK AREA
- TRAFFIC FLOW
- TRAFFIC DRUM
- TYPE III BARRICADE

STAGE 2
FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER
℄ CONST. STA. 134+25 TO STA. 137+10
RT. EXIST. HWY. 51 = 300 LIN. FT.

STA. 46+00 ℄ ACCESS RD.
INSTALL TEMPORARY
24"x84' SIDE DRAIN

STA. 137+03.60 ℄ CONST. HWY. 51
END JOB 070240
ELEV. 184.27'

SEQUENCE OF CONSTRUCTION

STAGE 2: PLACE TRAFFIC ON EXIST. HWY. 51 & STAGE I WIDENING AND INSTALL STAGE 2 PRECAST CONCRETE BARRIER FROM STA. 105+10 TO 109+66 RT. OF EXIST HWY. 51 AND STA. 134+25 TO 137+10 RT. OF EXIST. HWY. 51
WIDEN EXIST. HWY. 51 FROM STA. 101+00 TO STA. 105+10.
CONSTRUCT HWY. 51 RELOC. INCLUDING BRIDGE STRUCTURE FROM STA. 105+10 TO STA. 135+00.
CONSTRUCT RETAINING WALL FROM STA. 108+00 LT. TO STA. 109+23 RT.
INSTALL TYPE "A" GUARDRAIL STA. 107+10.97 TO STA. 109+29.72 RT. AND STA. 125+93.48 TO STA. 126+87.23 RT. OF ℄ CONST.
CONSTRUCT 2ND ST. CONNECTION UNDER TRAFFIC.
CONSTRUCT ACCESS RD. FROM STA. 43+77 TO STA. 49+40.

REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS:

℄ CONST. STA. 135+00 TO STA. 137+04 LT. HWY. 51 WHITE EDGE LINE = 204 LIN. FT.
℄ CONST. STA. 135+00 TO STA. 137+04 ℄ HWY. 51 DOUBLE YELLOW LINES = 408 LIN. FT.

CONSTRUCTION PAVEMENT MARKINGS:

℄ CONST. STA. 125+75 TO STA. 137+04 SOLID SKIP YELLOW = 280 LIN. FT.

NOTE:
SEE MAINTENANCE OF TRAFFIC ADVANCE WARNING SIGNS AND TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 14517
PAUL ROBBINS
8-13-14

STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	26	172

(2) MAINTENANCE OF TRAFFIC DETAILS

SEQUENCE OF CONSTRUCTION

STAGE 3A: REMOVE ALL STAGE 2 PRECAST CONCRETE BARRIER AND INSTALL STAGE 3 PRECAST CONCRETE BARRIER STA. 106+62 TO 109+90 LT. OF ℄ CONST. & STA. 125+00 TO 129+00 LT. OF ℄ CONST.
MOVE TRAFFIC TO RELOC. HWY. 51 WITH LANE SHIFTS AS SHOWN AND CONSTRUCT TEMP. DRIVE TO KEEP ACCESS OPEN TO DRIVEWAY AT STA. 105+65 LT. ℄ CONST.
CONSTRUCT REMAINING TIES & TRANSITIONS UNDER TRAFFIC.
CONSTRUCT RETAINING WALL FROM STA. 106+80 LT. TO STA. 108+00 LT.
REMOVE STAGE I CONSTRUCTION WIDENING AND OBLITERATE EXIST. PAVEMENT.
CONSTRUCT PARK TRAIL TO EXIST. HWY. 51 BRIDGE.
INSTALL TYPE "A" GUARDRAIL STA. 106+82.56 TO STA. 109+01.31 LT. AND STA. 125+93.48 TO STA. 128+12.23 LT. OF ℄ CONST. AND TYPE "C" GUARDRAIL (AS SHOWN).

STAGE 3B: REMOVE ALL TEMPORARY PRECAST BARRIERS AND PLACE FINAL ACHM SURFACE COURSE.
INSTALL PERMANENT PAVEMENT MARKINGS.

℄ CONST. HWY. 51
P.I. = 101+75.00
N = 1843303.6103
E = 994764.5232
DELTA = 4°30'05" RT.
DOC = 3°00'00"
T = 75.06'
L = 150.05'
R = 1909.86'
E = 1.47'
P.C. = 100+99.94
P.T. = 102+49.99
e = NA
Ls = NA

STAGE 3A
FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER
℄ CONST. STA. 106+62 TO STA. 109+90 LT. = 328 LIN. FT.

OUACHITA RIVER

STA. 100+99.94
℄ CONST. HWY. 51
BEGIN JOB 070240

EXIST. HWY. 51 (BRIDGE)

HWY. 51 (CADDO ST.)

3RD ST.

S. 2ND ST.

1ST ST.

℄ CONST. PC

℄ CONST. PT

℄ CONST. PI

PC DRIVE

PT DRIVE

BUILDING

TRAFFIC DRUMS ℄ 20' SPACING - 23 TOTAL - STAGE 3A

TRAFFIC DRUMS ℄ 20' SPACING - 45 TOTAL - STAGE 3A

STAGE 3A TEMP. PRECAST CONCRETE BARRIER

ROAD CLOSED

(1) RII-2 (48" X 30")
(1) 8' BARR. TYP. III LT.

(1) RII-2 (48" X 30")
(1) 8' BARR. TYP. III RT.

(1) WI-6 (48" X 24")

(1) WI-4 (48" X 48")

OBLITERATION

EXIST. ROW

PROP. ROW

PROP. R.O.W.

T.C.E.

CONST. LIMITS

2 - 11' TEMP. LANES

100' LANE SHIFT

150' LANE SHIFT

8" CLAY SS

PARK TRAIL

RESTRAINING CONDITION

STA. 18+85.00 ℄ S. 2ND ST.
BEGIN CONSTRUCTION
ELEV. 229.94'

LEGEND

WORK AREA
TRAFFIC FLOW
TRAFFIC DRUM
TYPE III BARRICADE

NOTE:
SEE MAINTENANCE OF TRAFFIC ADVANCE WARNING SIGNS AND TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 14517
PAUL ROBBINS
8-13-14

STAGE 3
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	27	172

(2) MAINTENANCE OF TRAFFIC DETAILS

AR GAME & FISH ACCESS

(1) RII-2 (48" X 30") (1) 8' BARR. TYP. III LT.

ROAD CLOSED

ROAD CLOSED

(1) RII-2 (48" X 30") (1) 8' BARR. TYP. III RT.

WITHERSPOON ROAD

(1) W20-3 (36" X 36") ROAD CLOSED AHEAD

EXIST. HWY. 51

EXIST. ROW

EXIST. ROW

EXIST. ROW

SHOULDER CLOSED

(1) R5-1 (48" X 30")

SEQUENCE OF CONSTRUCTION

STAGE 3A: REMOVE ALL STAGE 2 PRECAST CONCRETE BARRIER AND INSTALL STAGE 3 PRECAST CONCRETE BARRIER STA. 106+62 TO 109+90 LT. OF ℄ CONST. & STA. 125+00 TO 129+00 LT. OF ℄ CONST.
MOVE TRAFFIC TO RELOC. HWY. 51 WITH LANE SHIFTS AS SHOWN AND CONSTRUCT TEMP. DRIVE TO KEEP ACCESS OPEN TO DRIVEWAY AT STA. 105+65 LT. ℄ CONST.
CONSTRUCT REMAINING TIES & TRANSITIONS UNDER TRAFFIC.
CONSTRUCT RETAINING WALL FROM STA. 106+80 LT. TO STA. 108+00 LT.
REMOVE STAGE I CONSTRUCTION WIDENING AND OBLITERATE EXIST. PAVEMENT.
CONSTRUCT PARK TRAIL TO EXIST. HWY. 51 BRIDGE.
INSTALL TYPE "A" GUARDRAIL STA. 106+82.56 TO STA. 109+01.31 LT. AND STA. 125+93.48 TO STA. 128+12.23 LT. OF ℄ CONST. AND TYPE "C" GUARDRAIL (AS SHOWN).

STAGE 3B: REMOVE ALL TEMPORARY PRECAST BARRIERS AND PLACE FINAL ACHM SURFACE COURSE.
INSTALL PERMANENT PAVEMENT MARKINGS.

(1) W1-4 (48" X 48")

500'

OUACHITA RIVER

UNION PACIFIC RAILROAD

STA. 41+14.37 ℄ ACCESS RD.
BEGIN CONSTRUCTION
ELEV. 179.91'

℄ ACCESS RD.
P.I. = 42+97.03
N = 1843193.5560
E = 997163.0386
DELTA = 35°21'53" LT.
DOC = 10°00'00"
T = 182.66'
L = 353.65'
R = 572.96'
E = 28.41'
P.C. = 41+14.37
P.T. = 44+68.02
e = 0.094 FT./FT.
Ls = 250'

45+00

+34.06 273.31

+65.00 206.41

+70.87 196.73

+50.00 170.00

EXIST. P.C.E.

+36.45 161.61

PROP. R.O.W.

CONST. LIMITS

S 48°54'16" E

+43.67 238.32

+70.00 306.00

PROP. ROW

+50.00 240.00

℄ ACCESS RD. P.T.

STAGE 3A PLUG & ABANDON TEMP. 24"X84' SIDE DRAIN

℄ ACCESS RD.

S 84°16'09" E

EXIST. ROW

EXIST. HWY. 51

OBLITERATION

+12.07 148.35

TRAFFIC DRUMS ℄ 20' SPACING - 25 TOTAL - STAGE 3A

+65.00 40.00

+20.00 145.00

STAGE 3A TEMP. PRECAST CONCRETE BARRIER

+74.06 40.00

P.C.E.

PROP. R.O.W.

℄ CONST.

+49.50 40.00

+93.22 40.00

S 84°16'09" E

2' SHLDR.

12@11' LANES

2' SHLDR.

PROP. R.O.W.

+40.77 40.00

+66.91 40.00

+10.64 40.00

TRAFFIC DRUMS ℄ 40' SPACING - 40 TOTAL - STAGE 3A

115+00

120+00

125+00

LEGEND

WORK AREA

TRAFFIC FLOW

TRAFFIC DRUM

TYPE III BARRICADE

NOTE:
SEE MAINTENANCE OF TRAFFIC ADVANCE WARNING SIGNS AND TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.

STAGE 3A
FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER
℄ CONST. STA. 125+00 TO STA. 129+00 RT. = 400 LIN. FT.

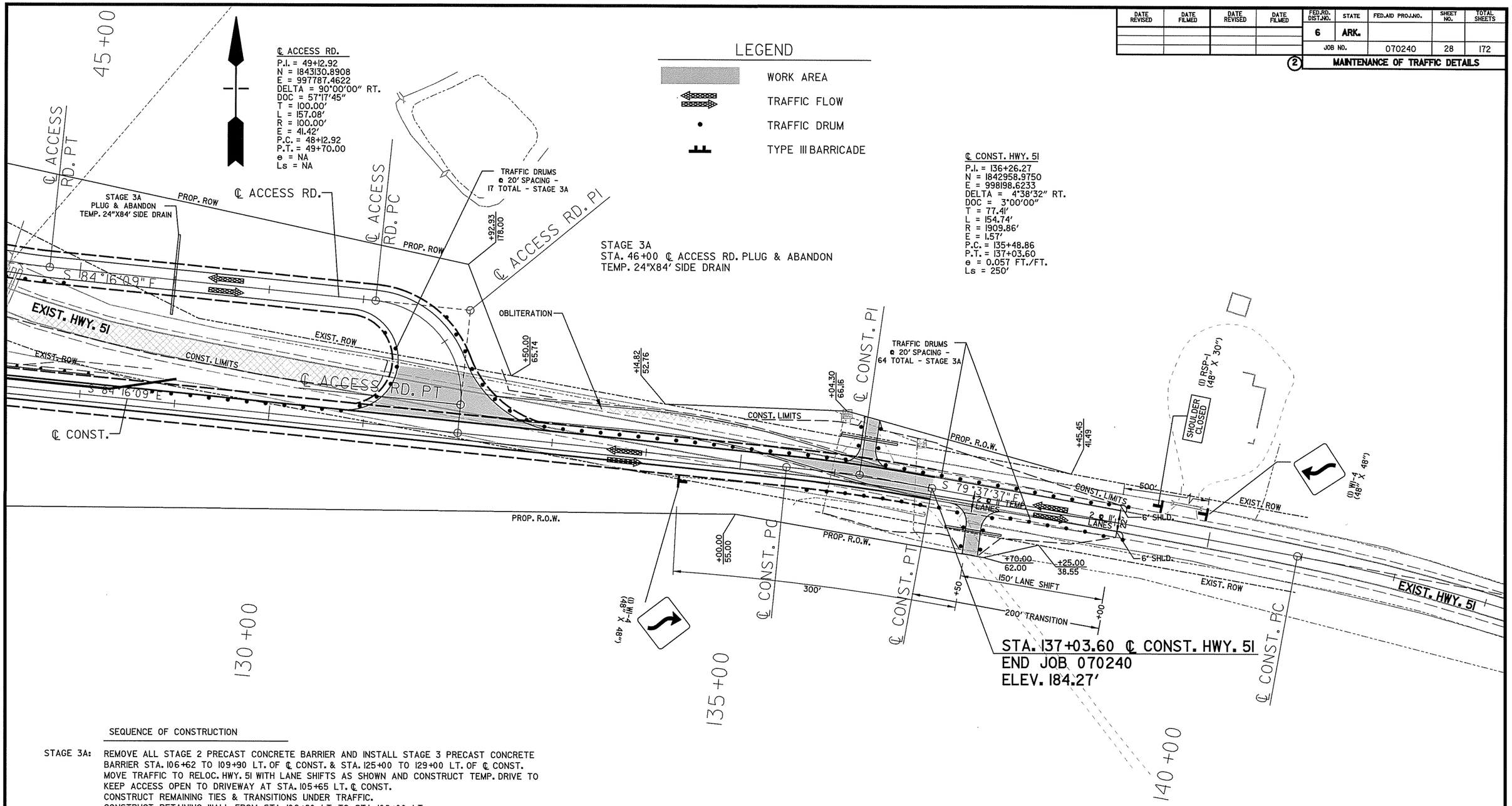
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 14517
PAUL ROBBINS
8-13-14

STAGE 3
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		070240	28	172

(2) MAINTENANCE OF TRAFFIC DETAILS



SEQUENCE OF CONSTRUCTION

STAGE 3A: REMOVE ALL STAGE 2 PRECAST CONCRETE BARRIER AND INSTALL STAGE 3 PRECAST CONCRETE BARRIER STA. 106+62 TO 109+90 LT. OF ℄ CONST. & STA. 125+00 TO 129+00 LT. OF ℄ CONST.
MOVE TRAFFIC TO RELOC. HWY. 51 WITH LANE SHIFTS AS SHOWN AND CONSTRUCT TEMP. DRIVE TO KEEP ACCESS OPEN TO DRIVEWAY AT STA. 105+65 LT. ℄ CONST.
CONSTRUCT REMAINING TIES & TRANSITIONS UNDER TRAFFIC.
CONSTRUCT RETAINING WALL FROM STA. 106+80 LT. TO STA. 108+00 LT.
REMOVE STAGE I CONSTRUCTION WIDENING AND OBLITERATE EXIST. PAVEMENT.
CONSTRUCT PARK TRAIL TO EXIST. HWY. 51 BRIDGE.
INSTALL TYPE "A" GUARDRAIL STA. 106+82.56 TO STA. 109+01.31 LT. AND STA. 125+93.48 TO STA. 128+12.23 LT. OF ℄ CONST. AND TYPE "C" GUARDRAIL (AS SHOWN).

STAGE 3B: REMOVE ALL TEMPORARY PRECAST BARRIERS AND PLACE FINAL ACHM SURFACE COURSE.
INSTALL PERMANENT PAVEMENT MARKINGS.

NOTE:
SEE MAINTENANCE OF TRAFFIC ADVANCE WARNING SIGNS AND TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 14517
PAUL ROBBINS
8-13-14

STAGE 3
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	29	172

(2) PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 14517
PAUL ROBBINS
6-18-14

℄ CONST. HWY. 51
P.I. = 101+75.00
N = 1843303.6103
E = 994764.5232
DELTA = 4°30'05" RT.
DOC = 3°00'00"
T = 75.06'
L = 150.05'
R = 1909.86'
E = 1.47'
P.C. = 100+99.94
P.T. = 102+49.99
e = NA
Ls = NA

4" WHITE THERMOPLASTIC PAVEMENT MARKINGS:

℄ CONST. STA. 100+30 TO 104+68 LT. & RT. EDGE LINE= 876 LIN. FT.
℄ CONST. STA. 105+29 TO 130+79 LT. & RT. EDGE LINE= 4946 LIN. FT.

4" YELLOW THERMOPLASTIC PAVEMENT MARKINGS:

℄ CONST. STA. 100+30 TO 104+68 DOUBLE SOLID LINES= 876 LIN. FT.
℄ CONST. STA. 105+29 TO 109+47 DOUBLE SOLID LINES= 836 LIN. FT.

*THE 4" YELLOW STRIPING QUANTITY HAS BEEN ESTIMATED BASED ON A DOUBLE YELLOW CENTERLINE STRIPE FOR THE ENTIRE PROJECT. THE PROJECT MUST BE MARKED FOR PASSING/NO PASSING ZONES PRIOR TO THE PLACEMENT OF ANY FINAL STRIPING. CONTACT THE MAINTENANCE DIVISION AFTER THE FINAL LIFT OF SURFACE COURSE HAS BEEN PLACED TO SCHEDULE THE ZONING OF THE PROJECT.

STA. 100+99.94
℄ CONST. HWY. 51
BEGIN JOB 070240

EXIST. SOLID WHITE
EXIST. DOUBLE YELLOW
HWY. 51 (CADDO ST.)
S. 3RD ST.
℄ CONST. PC 100+99.94
℄ CONST. PI 101+75.00
℄ CONST. PT 102+49.99
4" SOLID WHITE THERMOPLASTIC
*4" SOLID DOUBLE YELLOW THERMOPLASTIC
4" SOLID DOUBLE YELLOW REFLECTORIZED PAINT
4" SOLID WHITE REFLECTORIZED PAINT
S 88°46'14" E
S 84°16'09" E
N 1°37'34" E
N. 2ND ST.
S. 2ND ST.
PI DRIVE
PC DRIVE
PT DRIVE
HWY. 51 RELOC.
℄ CONST.
*4" SOLID DOUBLE YELLOW HIGH PERFORMANCE CONTRAST PAVEMENT MARKINGS

STA. 104+96.12 ℄ CONST. HWY. 51 =
STA. 20+00.00 ℄ S. 2ND STREET
◁ 85°53'43"

STA. 18+85.00 ℄ S. 2ND STREET
BEGIN CONSTRUCTION
ELEV. 229.94'

100+00
105+00
110+00

4" WHITE REFLECTORIZED PAINT PAVEMENT MARKINGS:

℄ 2ND ST. STA. 18+85 TO 20+50 LT. & RT. EDGE LINE= 328 LIN. FT.

4" YELLOW REFLECTORIZED PAINT PAVEMENT MARKINGS:

℄ 2ND ST. STA. 18+85 TO 19+78 DOUBLE SOLID LINES= 186 LIN. FT.

4" YELLOW HIGH PERFORMANCE CONTRAST PAVEMENT MARKINGS:

℄ CONST. STA. 109+47 TO 125+74 DOUBLE SOLID LINES= 3254 LIN. FT.

STA. 41+14.37 ℄ ACCESS RD.
BEGIN CONSTRUCTION
ELEV. 179.50'

℄ ACCESS RD.
P.I. = 42+97.03
N = 1843193.5560
E = 997163.0386
DELTA = 35°21'53" LT.
DOC = 10°00'00"
T = 182.66'
L = 353.65'
R = 572.96'
E = 28.41'
P.C. = 41+14.37
P.T. = 44+68.02
e = 0.094 FT./FT.
Ls = 250'

S 40°57'16" E
℄ ACCESS RD. PC 41+14.37
℄ ACCESS RD. PT 44+68.02
45+00
S 84°16'09" E
℄ ACCESS RD. PI 42+97.03
ACCESS ROAD
4" SOLID DOUBLE YELLOW REFLECTORIZED PAINT
4" SOLID WHITE REFLECTORIZED PAINT

4" WHITE REFLECTORIZED PAINT PAVEMENT MARKINGS:

℄ ACCESS RD. STA. 41+14 TO 49+88 LT. & RT. EDGE LINE= 1801 LIN. FT.

4" YELLOW REFLECTORIZED PAINT PAVEMENT MARKINGS:

℄ ACCESS RD. STA. 41+14 TO 49+70 LT. & RT. EDGE LINE= 1712 LIN. FT.

4" YELLOW THERMOPLASTIC PAVEMENT MARKINGS:

℄ CONST. STA. 125+74 TO 130+79 DOUBLE SOLID LINES= 1010 LIN. FT.
℄ CONST. STA. 133+08 TO 139+04 DOUBLE SOLID LINES= 1192 LIN. FT.

℄ ACCESS RD.
P.I. = 49+12.92
N = 1843130.8908
E = 997787.4622
DELTA = 90°00'00" RT.
DOC = 57°17'45"
T = 100.00'
L = 157.08'
R = 100.00'
E = 41.42'
P.C. = 48+12.92
P.T. = 49+70.00
e = NA
Ls = NA

℄ ACCESS RD. PI 49+12.92
℄ ACCESS RD. PT 49+70.00
S 5°45'51" W

STA. 132+00.00 ℄ CONST. =
STA. 50+00.00 ℄ ACCESS ROAD
◁ 90°00'00"

℄ CONST. HWY. 51
P.I. = 136+26.27
N = 1842958.9750
E = 998198.6233
DELTA = 4°38'32" RT.
DOC = 3°00'00"
T = 77.41'
L = 154.74'
R = 1909.86'
E = 1.57'
P.C. = 135+48.86
P.T. = 137+03.60
e = 0.057 FT./FT.
Ls = 250'

℄ CONST. PI 136+26.27
135+00
*4" SOLID DOUBLE YELLOW THERMOPLASTIC
4" SOLID WHITE THERMOPLASTIC
*4" SOLID DOUBLE YELLOW HIGH PERFORMANCE CONTRAST PAVEMENT MARKINGS
HWY. 51 RELOC.
℄ CONST.
EXIST. DOUBLE YELLOW
EXIST. SOLID WHITE
EXIST. HWY. 51
S 84°16'09" E
S 79°37'37" E
200' TRANSITION

125+00
130+00

*THE 4" YELLOW STRIPING QUANTITY HAS BEEN ESTIMATED BASED ON A DOUBLE YELLOW CENTERLINE STRIPE FOR THE ENTIRE PROJECT. THE PROJECT MUST BE MARKED FOR PASSING/NO PASSING ZONES PRIOR TO THE PLACEMENT OF ANY FINAL STRIPING. CONTACT THE MAINTENANCE DIVISION AFTER THE FINAL LIFT OF SURFACE COURSE HAS BEEN PLACED TO SCHEDULE THE ZONING OF THE PROJECT.

4" WHITE THERMOPLASTIC PAVEMENT MARKINGS:

℄ CONST. STA. 130+79 TO 139+04 LT. & RT. EDGE LINE= 1420 LIN. FT.

STA. 137+03.60 ℄ CONST.
END JOB 070240
ELEV. 184.24

PAVEMENT MARKING DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	30	172
				(2)		SOIL LOG		

SOIL LOG

STATION	LOCATION	DEPTH FEET	A.A.S.H.T.O. CLASSIFICATION	LIQUID LIMIT	PLASTICITY INDEX	COLOR
106+00	14' RT.	0-20	A-2-6 (1)	28	14	BROWN/RED/GRAY
106+00	24' RT.	19.5-21	A-4 (0)	30	4	GRAY/BROWN
108+50	C.L.	0-15	A-2-4 (0)	20	2	BROWN/TAN/GRAY
108+50	60' RT.	4.5-16	A-1-a (0)	19	4	RED/BROWN
108+50	60' RT.	5-6.5	A-2-4 (0)	NA	NA	TAN/GRAY
108+50	60' RT.	5-30.4	A-2-6 (0)	35	12	GRAY
109+33	22' LT.	4.2-10.7	A-1-b (0)	23	4	BROWN
109+65	22' RT.	4.6-5.6	A-4 (5)	26	9	BROWN
110+38	20' LT.	18-39.5	A-2-4 (0)	NP	NP	GRAY
110+38	20' LT.	43-64.3	A-6 (3)	29	11	GRAY
110+66	20' RT.	8-9.5	A-4 (6)	28	8	BROWN
110+66	20' RT.	18.9-28.8	A-2-4 (0)	NP	NP	GRAY/BROWN
112+00	20' LT.	1-7.5	A-1-a (0)	NA	NA	BROWN/GRAY
114+40	20' LT.	14-30.5	A-7-6 (27)	52	32	GRAY
114+68	20' RT.	14-30.5	A-2-4 (0)	25	3	GRAY
116+37	20' LT.	9.6-10.6	A-2-4 (0)	NP	NP	BROWN
116+37	20' LT.	19.6-30.6	A-1-a (0)	24	3	GRAY
116+37	20' LT.	49.6-60	A-6 (11)	36	20	GRAY
117+87	20' LT.	19.5-21	A-2-4 (0)	NP	NP	GRAY
117+87	20' RT.	29.7-31.2	A-2-4 (0)	NP	NP	GRAY
117+87	20' RT.	34.7-34.8	A-1-a (0)	NA	NA	GRAY/WHITE
119+63	20' RT.	28-36.4	A-1-b (0)	22	3	GRAY
121+24	20' LT.	39.5-44.7	A-2-4 (0)	24	NP	GRAY
121+24	20' RT.	29.6-34.8	A-2-4 (0)	NA	NA	LIGHT GRAY
122+63	20' LT.	4.5-6	A-2-4 (0)	NP	NP	BROWN
122+63	20' LT.	24.5-45.8	A-2-4 (0)	24	2	GRAY
124+35	20' LT.	4.7-6.2	A-4 (5)	27	8	BROWN
124+35	20' LT.	9.7-10.9	A-4 (4)	25	7	BROWN
124+35	20' LT.	19.7-20	A-2-4 (0)	NA	NA	GRAY
125+74	20' LT.	9.3-10.7	A-2-4 (0)	NP	NP	GRAY
125+74	20' LT.	14.3-15.8	A-1-a (0)	NP	NP	BROWN
125+74	20' LT.	44.3-55.2	A-6 (13)	38	21	GRAY
125+74	20' RT.	4.6-6	A-4 (8)	30	9	BROWN
125+74	20' RT.	24.6-46.1	A-2-4 (0)	25	1	GRAY
126+50	C.L.	0-15	A-4 (6)	28	9	BROWN/GRAY
126+50	120' RT.	4.5-5.6	A-6 (11)	30	12	BROWN
132+50	C.L.	0-5	A-6 (7)	30	12	BROWN

SOIL CHARACTERISTICS TABULATED ABOVE ARE REPRESENTATIVE AT THE LOCATIONS OF THE SAMPLE, AND FROM SURFACE INDICATIONS ARE TYPICAL FOR THE LIMITS SHOWN. THESE DATA ARE SHOWN FOR INFORMATION ONLY. THE STATE WILL NOT BE RESPONSIBLE FOR VARIATIONS IN THE SOIL CHARACTERISTICS AND/OR EXTENT OF SAME DIFFERING FROM THE ABOVE TABULATIONS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 14517
PAUL ROBBINS
8-15-14

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	31	172
				(2)	QUANTITIES			

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1	STAGE 2	REMOVAL OF PERMANENT PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	THERMOPLASTIC PAVEMENT MARKINGS 4"		REFLECTORIZED PAINT PAVEMENT MARKINGS 4"		HIGH PERFORMANCE CONTRAST PAVEMENT MARKING
							WHITE	*YELLOW	WHITE	YELLOW	*YELLOW (4")
	LIN.FT.		LIN.FT.	LIN.FT.	LIN.FT.		LIN.FT.		LIN.FT.		LIN.FT.
REMOVAL OF PERMANENT PAVEMENT MARKINGS	1457	1631	3088								
CONSTRUCTION PAVEMENT MARKINGS	1888	700		2588							
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS		612			612						
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS		410				410					
THERMOPLASTIC PAVEMENT MARKINGS WHITE (4")							7242				
THERMOPLASTIC PAVEMENT MARKINGS YELLOW (4")								3914			
REFLECTORIZED PAINT PAVEMENT MARKINGS WHITE (4")									2129		
REFLECTORIZED PAINT PAVEMENT MARKINGS YELLOW (4")										1898	
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING YELLOW (4")											3254
TOTALS:			3088	2588	612	410	7242	3914	2129	1898	3254

NOTE: THIS IS A HIGH TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2014 EDITION.

* THE 4" YELLOW STRIPING QUANTITY HAS BEEN ESTIMATED BASED ON A DOUBLE YELLOW CENTERLINE STRIPE FOR THE ENTIRE PROJECT. THE PROJECT MUST BE MARKED FOR PASSING/NO PASSING ZONES PRIOR TO THE PLACEMENT OF ANY FINAL STRIPING. CONTACT THE MAINTENANCE DIVISION AFTER THE FINAL LIFT OF SURFACE COURSE HAS BEEN PLACED TO SCHEDULE THE ZONING OF THE PROJECT.

REMOVAL AND DISPOSAL OF CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS
		EACH
127+09	LT. OF C.L. CONST. - TRI. 48" x 70' C.M. PIPE CULVERTS	3
136+31	LT. OF C.L. CONST. - 24" x 60' SIDE DRAIN	1
137+52	RT. OF C.L. CONST. - SIDE DRAIN	1
TOTAL:		5

NOTE: QUANTITY SHOWN ABOVE SHALL INCLUDE REMOVAL & DISPOSAL OF ALL HEADWALLS AND FLARED END SECTIONS IF APPLICABLE.

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
101+75	112+00	C.L. CONST.	10	10
115+00	121+00	C.L. CONST.	6	6
123+00	137+00	C.L. CONST.	14	14
TOTALS:			30	30

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	CONCRETE DRIVEWAYS	CONCRETE FOUNDATIONS	CONCRETE POST	CURB AND GUTTER	FENCE	GATES	GUARDRAIL	RETAINING WALLS	SIDEWALKS	SIGNS	STEPS
			SQ. YD.	EACH		LIN. FT.		EACH	LIN.FT.	LIN. FT.	SQ. YD.	EACH	SQ. YD.
100+20.00	104+89.00	RT. OF C.L. CONST.								525			
100+30.00	105+00.00	RT. OF C.L. CONST.				494							
100+30.00	101+00.00	LT. OF C.L. CONST.				83							
100+99.94	105+00.00	LT. OF C.L. CONST.									160		
101+00.00	101+00.00	LT. OF C.L. CONST.								4			
101+00.00		LT. OF C.L. CONST.	16										
101+00.00	102+00.00	LT. OF C.L. CONST.				42							
101+00.00		RT. OF C.L. CONST.											2
101+48.00		RT. OF C.L. CONST.											1
102+00.00		LT. OF C.L. CONST.	17										
102+00.00		RT. OF C.L. CONST.											2
102+00.00	102+00.00	LT. OF C.L. CONST.				20							
102+00.00		LT. OF C.L. CONST.	17										
102+00.00	103+00.00	LT. OF C.L. CONST.				70							
102+00.00		RT. OF C.L. CONST.											2
102+43.00		RT. OF C.L. CONST.											1
102+55.00	104+82.00	LT. OF C.L. CONST.								230			
102+89.00		RT. OF C.L. CONST.											1
103+00.00		RT. OF C.L. CONST.											2
103+00.00		LT. OF C.L. CONST.	12										
103+00.00	105+00.00	LT. OF C.L. CONST.				157							
104+00.00		RT. OF C.L. CONST.											2
105+00.00	109+00.00	LT. OF C.L. CONST.									183		
105+00.00	105+00.00	RT. AND LT. OF C.L. CONST.				50							
105+00.00		RT. OF C.L. CONST.											2
105+12.00		RT. OF C.L. CONST.											1
105+75.00		RT. OF C.L. CONST.						1					
105+75.00	106+67.00	RT. OF C.L. CONST.					150						
106+62.00		LT. OF C.L. CONST.		2							1		
107+50.00		LT. OF C.L. CONST.		1							1		
107+86.00		RT. OF C.L. CONST.		1							1		
108+00.00		LT. OF C.L. CONST.									1		
108+70.00	108+82.00	RT. OF C.L. CONST.						2					
108+70.00	109+14.00	RT. OF C.L. CONST.					100						
109+26.00	109+48.00	C.L. OF CONST.			8								
109+00.00	110+00.00	LT. OF C.L. CONST.							77				
109+00.00	110+00.00	LT. OF C.L. CONST.							27				
114+00.00	114+00.00	LT. OF C.L. CONST.							77				
114+00.00	114+00.00	LT. OF C.L. CONST.							27				
TOTALS:			62	4	8	916	250	3	208	759	343	4	16

NOTE: QUANTITY FOR REMOVAL & DISPOSAL OF GUARDRAIL INCLUDES THE REMOVAL & DISPOSAL OF ANY TERMINAL ANCHOR POSTS.

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	STAGE 3A	STAGE 3B	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		TRAFFIC DRUMS	BARRICADES (TYPE III)		FURNISHING & INSTALLING PRECAST CONC. BARRIER
											RIGHT	LEFT	
			LIN.FT. - EACH					NO.	SQ. FT.	EACH	LIN.FT.	LIN. FT.	LIN. FT.
W20-1	ROAD WORK 1500 FT.	48"x48"	2	2	2	2	2	2	32.0				
W20-1	ROAD WORK 1000 FT.	48"x48"	2	2	2	2	2	2	32.0				
W20-1	ROAD WORK 500 FT.	48"x48"	2	2	2	2	2	2	32.0				
W20-1	ROAD WORK AHEAD	48"x48"	3	3	3	3	3	3	48.0				
G20-2	END ROAD WORK	48"x24"	5	5	5	5	5	5	40.0				
W1-4	REVERSE CURVE	48"x48"			6		6	6	96.0				
W13-1	SPEED LIMIT (ADVISORY)	24"x24"		2			2	2	8.0				
R11-2	ROAD CLOSED	48"x30"		6	7		7	7	70.0				
W1-8	CHEVRONS	18"x24"		18			18	18	54.0				
W20-3	ROAD CLOSED AHEAD	36"x36"			1		1	1	9.0				
W24-1	DOUBLE REVERSE CURVE	36"X36"		2			2	2	18.0				
W1-6	LARGE ARROW	48"x24"		1	1		1	1	8.0				
RSP-1	SHOULDER CLOSED	48"x30"	1	2	2		2	2	20.0				
SP-1	BOATER SAFETY	60"X36"		3			3	3	45.0				
SP-2	BOATER SAFETY	60"X36"		2			2	2	30.0				
R-4	DO NOT PASS	24"X30"	2	2	2	2	2	2	10.00				
	TRAFFIC DRUMS		28	145	214		214			214			
	TYPE III BARRICADE-RT. (8')			3	3		3	3			24		
	TYPE III BARRICADE-LT. (8')			3	4		4	4				32	
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER			756	728		1484						1484
TOTALS:									552.0	214	24	32	1484

NOTE: THIS IS A HIGH TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2014 EDITION.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 14517
PAUL ROBBINS
11-5-14

QUANTITIES

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	32	172

(2) QUANTITIES

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL							TEMPORARY EROSION CONTROL									
			SEEDING	LIME	MULCH COVER	WATER	DUMPED RIPRAP	SECOND SEEDING APPLICATION	SOLID SODDING	TEMPORARY SEEDING	MULCH COVER	WATER	SAND BAG DITCH CHECKS	DROP INLET SILT FENCE	SILT FENCE	DIVERSION DITCH	SLOPE DRAIN (E-12) PIPE FOR SLOPE DRAINS	SLOPE DRAIN (E-12) DUMPED RIPRAP	SEDIMENT REMOVAL & DISPOSAL
													(E-5)	(E-7)	(E-11)	(E-8)			
			ACRE	TON	ACRE	M.GAL.	CU. YD.	ACRE	SQ.YD.	ACRE	ACRE	M.GAL.	BAG	LIN.FT.	LIN.FT.	LIN.FT.	LIN.FT.	CU.YD.	CU. YD.
ENTIRE	PROJECT	STAGE 1								0.37	0.37	7.5	110		635				29
ENTIRE	PROJECT	STAGE 2								4.60	4.60	93.8	264	222	2960	1050	66	8	130
ENTIRE	PROJECT	STAGE 3	4.95	9.90	4.95	506.8	26.0	4.95	150	2.40	2.40	49.0	132	142	2070				88
* ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			1.00	2.00	1.00	102.1		1.00	10	1.00	1.00	20.4	50	50	200	100	34	15	100
TOTALS:			5.95	11.90	5.95	608.9	26.0	5.95	160	8.37	8.37	170.7	556	414	5865	1150	100	23	347

BASIS OF ESTIMATE:
LIME .....2 TONS / ACRE OF SEEDING
WATER.....102.0 M.G. / ACRE OF SEEDING.
WATER.....20.4 M.G. / ACRE OF TEMPORARY SEEDING.
WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING.
SAND BAG DITCH CHECKS.....22 BAGS / LOCATION

NOTE: THE TEMPORARY EROSION CONTROL DEVICES SHOWN ABOVE AND ON THE PLANS SHALL BE INSTALLED IN SUCH A SEQUENCE AS TO DETER EROSION AND SEDIMENTATION ON U.S. WATERWAYS AS EXPLAINED BY THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT.

* QUANTITIES ARE ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

GUARDRAIL (TYPE A)

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
			LIN.FT.	EACH	
106+82.56	109+01.31	LT. OF C.L. CONST.	150	1	1
107+10.97	109+29.72	RT. OF C.L. CONST.	150	1	1
125+93.48	128+12.23	LT. OF C.L. CONST.	150	1	1
125+93.48	126+87.23	RT. OF C.L. CONST.	25	1	1
TOTALS:			475	4	4

GUARDRAIL (TYPE C)

STATION	LOCATION	GUARDRAIL (TYPE C)
		LIN.FT.
108+73	RT. OF C.L. CONST.	25
114+90	LT. OF C.L. CONST.	25
TOTAL:		50

4" PIPE UNDERDRAIN

LOCATION	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
	LIN.FT.	EACH
* ENTIRE PROJECT TO BE USED IF AND	400	4
WHERE DIRECTED BY THE ENGINEER		
TOTALS:	400	4

* NOTE: QUANTITIES ARE ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

UNDERDRAINS SHALL BE STUBBED INTO THE PROPOSED DROP INLET IF AND WHERE DIRECTED BY THE ENGINEER. PAYMENT FOR THIS TO BE INCLUDED IN THE UNIT PRICE BID FOR 4" PIPE UNDERDRAIN.

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING
	CU.YD.
* ENTIRE PROJECT TO BE USED IF	100
AND WHERE DIRECTED BY THE	
ENGINEER	
TOTAL:	100

* NOTE: QUANTITIES ARE ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

STATION	LOCATION	WIDTH	LENGTH	TON
		FEET		
42+60	C.L. ACCESS RD.	26	46	88
44+25	C.L. ACCESS RD.	35	20	52
TOTAL:				140

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
100+30	101+00	C.L. CONST. HWY. 51	28	217.78
137+04	139+04	C.L. CONST. HWY. 51	37	822.22
18+85	19+35	C.L. CONST. 2ND ST.	23	127.78
40+64	41+14	C.L. CONST. ACCESS RD.	40	222.22
TOTAL:				1390.00

NOTE: AVERAGE MILLING DEPTH 1".

APPROACH GUTTERS

BRIDGE NUMBER	LOCATION	APPROACH GUTTERS TYPE 1 SPECIAL	APPROACH GUTTERS TYPE 2 SPECIAL	REINFORCING STEEL - ROADWAY (GRADE 60)	12" ZINC COATED (GALVANIZED) CORR. STEEL PIPE CULVERT (16 GAUGE)	CONCRETE SPILLWAY (TYPE A)	DROP INLET (TYPE N3)	STANDARD DRAWING NUMBER
		CUBIC YARDS		POUND	LIN. FT.	EACH		
07316	BEGIN BRIDGE LT. & RT. OF CL CONST.	28.43		2561	86	1	2	SPECIAL DETAIL, FPC-9N
07316	END BRIDGE LT. & RT. OF CL CONST.		22.94	2026	158	2	2	SPECIAL DETAIL, FPC-9N
TOTALS:		28.43	22.94	4587	244	3	4	

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT
		GALLON
* ENTIRE PROJECT - TO BE USED IF AND WHERE	50	100
DIRECTED BY THE ENGINEER		
TOTALS:	50	100

* NOTE: QUANTITIES ARE ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.
BASIS OF ESTIMATE: ASPHALT CONCRETE PATCHING....25 TONS/MILE
TACK COAT.....50 GAL./MILE

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 14517
PAUL ROBBINS
8-18-14

QUANTITIES

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
12/5/14				6	ARK.			
				JOB NO.		070240	33	172

(2) QUANTITIES

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	STAGE 1		STAGE 2			STAGE 3		
			UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	STONE BACKFILL	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	STONE BACKFILL
			CU. YD.				TON	CU. YD.		TON
100+99.94	139+03.60	HWY. 51	86	104	4194	52491	12443	1270	4949	1170
41+14.37	49+86.00	ACCESS ROAD			2576	4511		768	574	
18+85.00	19+85.96	2ND ST			651					
10+00.00	12+65.46	PARK SIDEWALK							806	
		DRIVEWAYS - ENTIRE PROJECT						125	56	
TOTALS:			86	104	7421	57002	12443	2163	6385	1170

NOTE: TOTALS CARRIED TO SUMMARY OF EARTHWORK BOX.

SUMMARY OF EARTHWORK

	DESCRIPTION	** UNCLASSIFIED EXCAVATION	** COMPACTED EMBANKMENT	STONE BACKFILL	SOIL STABILIZATION
		CU. YD.		TON	
	STAGE1	86	104		
	STAGE 2	7421	57002	12443	
	STAGE 3	2163	6385	1170	
	ADDITIONAL FOR CHANNEL IMPROVEMENTS	322			
*	ENTIRE PROJECT - TO BE USED				50
	IF AND WHEN DIRECTED BY THE ENGINEER				
	TOTALS:	9992	63491	13613	50

* QUANTITY ESTIMATED - SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.
** NOTE: UNCLASSIFIED EXCAVATION AND COMPACTED EMBANKMENT WILL BE PAID FOR AS PLAN QUANTITY EARTHWORK.

RETAINING WALL

STATION	STATION	LOCATION	LENGTH	AREA	SELECT GRANULAR BACKFILL	RAMMED AGG. PIERS
			LIN. FT.	SQ. FT.	CU. YD.	EACH
106+80	109+23	LT. & RT. OF C.L. CONST.	420	6491	2609	393
TOTALS:				6491	2609	393

CONCRETE WALKS

STATION	STATION	LOCATION	LENGTH	CONCRETE WALKS
			LIN.FT.	SQ.YD.
100+99.94	104+58.80	LT. OF C.L. CONST.	313	174
TOTAL:				174

CONCRETE DITCH PAVING

STATION	STATION	LOCATION	LENGTH	"W"	CONC. DITCH PAVING (TYPE B)	SOLID SODDING	WATER
			LIN. FT.	FEET	SQ. YD.	SQ. YD.	M. GAL.
106+80	109+23	LT. AND RT. OF C.L. CONST.	420	4	186.7	186.7	2.35
106+83	106+83	RT. OF C.L. CONST.	10	6	6.7	4.4	0.06
106+95	107+50	RT. OF C.L. CONST.	55	6	36.7	24.4	0.31
TOTALS:					230.1	215.5	2.72

BASIS OF ESTIMATE:
WATER..... 12.6 GAL. / SQ. YD. OF SOLID SODDING.

BENCH MARK CAP

LOCATION	EACH
BRIDGE NO. 07316	1
TOTAL:	1

NOTE: BENCH MARK CAPS TO BE FURNISHED AND INSTALLED BY STATE FORCES.

WHEELCHAIR RAMPS

STATION	LOCATION	TYPE 3
		SQ. YD.
104+71	LT. OF C.L. CONST.	6
TOTAL:		6

CONCRETE COMBINATION CURB AND GUTTER

STATION	STATION	LOCATION	TYPE A (1' 6")
			LIN. FT.
100+99.94	104+79.21	LT. OF C.L. CONST.	407
100+99.94	104+94.69	RT. OF C.L. CONST.	477
105+06.13	106+32.45	LT. OF C.L. CONST. (LT. OF DRIVEWAY)	198
105+14.11	106+78.50	RT. OF C.L. CONST.	259
106+53.50	108+75.68	LT. OF C.L. CONST. (RT. OF DRIVEWAY)	422
106+67.41	108+41.68	LT. OF C.L. CONST. (LT. OF DRIVEWAY)	216
TOTAL:			1979

STRUCTURES

STATION	LOCATION	DESCRIPTION	R.C. PIPE CULVERTS (CLASS III) 24"	R.C. PIPE CULVERTS (CLASS III) 48"	R.C. PIPE CULVERTS (CLASS IV) 18"	R.C. PIPE CULVERTS (CLASS V) 24"	SIDE DRAIN 24"	ALTERNATE PIPE CULVERTS FOR STORM SEWER 18"	ALTERNATE PIPE CULVERTS FOR STORM SEWER 24"	FLARED END SECTIONS FOR R.C. PIPE 24"	FLARED END SECTIONS FOR R.C. PIPE 48"	DROP INLETS TYPE E	DROP INLETS TYPE MO	DROP INLETS TYPE ST	DROP INLET EXTENSIONS EXT. 4'	DROP INLET EXTENSIONS EXT. 8'	SOLID SODDING	WATER	STD. DWG. NOS.
			LIN. FT.							EACH			EACH		EACH		SQ.YD.	M.GAL	
102+90	RT. C.L. CONST.	CONST. DROP INLET W/ PIPE CULVERT TO DROP INLET						156					1		1				FPC-9E, FPC-9M, PCC-1, PCM-1
104+50	LT. C.L. CONST.	CONST. DROP INLET W/R.C. PIPE CULVERT TO DROP INLET			204								1			1			FPC-9E, FPC-9M, PCC-1
104+50	RT. C.L. CONST.	CONST. DROP INLET W/ PIPE CULVERT TO DROP INLET							46				1			1			FPC-9E, FPC-9M, PCC-1, PCM-1
106+58	LT. C.L. CONST.	CONST. TYPE ST DROP INLET W/ PIPE CULVERT TO DROP INLET							34					1					FPC-9S, PCC-1, PCM-1
108+90	LT. C.L. CONST.	CONST. TYPE E DROP INLET W/ R.C. PIPE CULVERT THROUGH RETAINING WALL			52							1							FPC-9, PCC-1
136+31	LT. C.L. CONST.	INSTALL 24"X60' PIPE CULVERT SIDE DRAIN					60												PCC-1, PCM-1
137+52	RT. C.L. CONST.	INSTALL 24"X60' PIPE CULVERT SIDE DRAIN					60												PCC-1, PCM-1
42+60	C.L. ACCESS RD.	INSTALL TRI 48" X 80' PIPE CULVERTS W/ F.E.S. LT. & RT.		240							6						120	1.51	FPC-9E, FPC-9M, PCC-1, PCM-1, FES-1, FES-2
46+60	C.L. ACCESS RD.	TEMP. 24" X 84' SIDE DRAIN					84												PCC-1, PCM-1
19+50	LT. C.L. 2ND ST.	CONST. DROP INLET W/R.C. PIPE CULVERT TO DROP INLET	28										1			1			FPC-9E, FPC-9M, PCC-1
19+50	RT. C.L. 2ND ST.	CONST. DROP INLET W/ PIPE CULVERT TO DROP INLET							148	1			1			1	8	0.10	FPC-9E, FPC-9M, PCC-1, PCM-1, FES-1, FES-2
11+52	RT. C.L. DRIVEWAY	CONST. DROP INLET W/ PIPE CULVERT TO DROP INLET							142				1		1				FPC-9E, FPC-9M, PCC-1, PCM-1
12+97	RT. C.L. DRIVEWAY	CONST. DROP INLET W/ PIPE CULVERT TO DROP INLET				24							1		1				FPC-9E, FPC-9M, PCC-1
12+97	LT. C.L. DRIVEWAY	CONST. DROP INLET W/ R.C. PIPE OUTLET W/F.E.S. LT.				68				1			1		1		8	0.10	FPC-9E, FPC-9M, PCC-1, FES-1, FES-2
TOTALS:			28	240	256	92	204	156	370	2	6	1	8	1	4	4	136	1.71	

BASIS OF ESTIMATE:
WATER..... 12.6 GAL. / SQ. YD. OF SOLID SODDING.

NOTE: FOR R.C. PIPE CULVERT INSTALLATIONS USE TYPE 3 BEDDING UNLESS OTHERWISE SPECIFIED.
FOR C.M. PIPE CULVERT INSTALLATIONS USE TYPE 2 BEDDING UNLESS OTHERWISE SPECIFIED.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 14517
PAUL ROBBINS
12-5-14

QUANTITIES

r070240.qty.dgn 12/5/2014 11:43:04 AM

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	34	172

(2) QUANTITIES

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")					TACK COAT							AGGREGATE BASE COURSE CLASS 7		RUMBLE STRIPS ASPHALT
								NORMAL					0.10 GAL. PER SQ. YD.			0.03 GAL. PER SQ. YD.						
				AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	PG 70-22	TOTAL WID.	SQ.YD.	GALLON	TOTAL WID.	SQ.YD.	GALLON	TOTAL GALLONS	TON / STATION	TON	LIN. FT.
			FEET	FEET			TON	FEET			TON	TON	FEET			FEET						
HWY. 51																						
100+29.94	100+99.94	TRANSITION	70.00					26.00	202.22	220.00		22.24	26.0	202.22	20.22				20.22			
100+99.94	106+80.00	TANGENT - C&G LT. AND RT.	580.06	28.00	1804.63	440.00	397.02	28.00	1804.63	220.00	198.51					56.00	3609.26	108.28	108.28	128.25	743.93	
		FINAL ACHM SURFACE COURSE LIFT	580.06					28.25	1820.74	220.00		200.28										
* 106+80.00	109+45.66	TANGENT	265.66	28.50	841.26	440.00	185.08	28.25	833.88	220.00	91.73					56.75	1675.13	50.25	50.25	109.00	289.57	
		FINAL ACHM SURFACE COURSE LIFT	265.66					40.00	1180.71	220.00		129.88										
* 125+75.09	128+55.23	TANGENT FULL DEPTH SHOULDER ON RT.	280.14	34.50	1073.87	440.00	236.25	34.25	1066.09	220.00	117.27					68.75	2139.96	64.20	64.20	109.00	305.35	560.28
		FINAL ACHM SURFACE COURSE LIFT	280.14					40.00	1245.07	220.00		136.96										
128+55.23	133+61.36	TANGENT FULL DEPTH SHOULDER ON RT.	506.13	34.50	1940.17	440.00	426.84	34.25	1926.11	220.00	211.87					68.75	3866.27	115.99	115.99	210.00	1062.87	1012.26
		FINAL ACHM SURFACE COURSE LIFT	506.13					40.00	2249.47	220.00		247.44										
133+61.36	136+11.36	SUPER TRANS - FULL DEPTH SHOULDER ON RT.	250.00	34.50	958.33	440.00	210.83	34.25	951.39	220.00	104.65					68.75	1909.72	57.29	57.29	244.50	611.25	500.00
		FINAL ACHM SURFACE COURSE LIFT	250.00					40.00	1111.11	220.00		122.22										
136+11.36	136+41.10	MAX SUPER - FULL DEPTH SHOULDER ON RT.	29.74	34.50	114.00	440.00	25.08	34.25	113.18	220.00	12.45					68.75	227.18	6.82	6.82	279.00	82.97	59.48
		FINAL ACHM SURFACE COURSE LIFT	29.74					40.00	132.18	220.00		14.54										
136+41.10	137+03.60	SUPER TRANS - FULL DEPTH SHOULDER ON RT.	62.50	34.50	239.58	440.00	52.71	34.25	237.85	220.00	26.16					68.75	477.43	14.32	14.32	273.25	170.78	125.00
		FINAL ACHM SURFACE COURSE LIFT	62.50					40.00	277.78	220.00		30.56										
137+03.60	139+03.60	TRANSITION	200.00					37.00	822.22	220.00		90.44	37.00	822.22	82.22				82.22			
ACCESS ROAD																						
40+64.34	41+14.37	TRANSITION	50.03					22.13	123.02	220.00		13.53	22.1	122.85	12.29				12.29			
41+14.37	42+79.26	SUPER TRANS	164.89	22.50	412.23	440.00	90.69	22.25	407.64	220.00	44.84					44.75	819.87	24.60	24.60	267.50	441.08	
		FINAL ACHM SURFACE COURSE LIFT	164.89					34.00	622.92	220.00		68.52										
42+79.26	44+05.52	MAX SUPER	126.26	22.50	315.65	440.00	69.44	22.25	312.14	220.00	34.34					44.75	627.79	18.83	18.83	286.50	361.73	
		FINAL ACHM SURFACE COURSE LIFT	126.26					34.00	476.98	220.00		52.47										
44+05.52	46+55.52	SUPER TRANS	250.00	22.50	625.00	440.00	137.50	22.25	618.06	220.00	67.99					44.75	1243.06	37.29	37.29	248.25	620.63	
		FINAL ACHM SURFACE COURSE LIFT	250.00					34.00	944.44	220.00		103.89										
46+55.52	47+89.50	TANGENT	133.98	22.50	334.95	440.00	73.69	22.25	331.23	220.00	36.44					44.75	666.18	19.99	19.99	210.00	281.36	
		FINAL ACHM SURFACE COURSE LIFT	133.98					34.00	506.15	220.00		55.68										
47+89.50	49+86.00	TANGENT - RADIUS	196.50	VAR.	1262.16	440.00	277.68	VAR.	1256.42	220.00	138.21					VAR.	5080.40	152.41	152.41	349.25	686.28	
		FINAL ACHM SURFACE COURSE LIFT	196.50					VAR.	1520.12	220.00		167.21										
2ND. ST.																						
18+85.00	19+35.00	TRANS. - TANGENT - C&G LT. AND RT.	50.00					23.00	127.78	220.00	14.06	14.06	23.0	127.78	12.78				12.78			
19+35.00	19+52.87	TANGENT - C&G LT. AND RT.	17.87	24.0	47.65	440.00	10.48	24.00	47.65	220.00	5.24					48.00	95.31	2.86	2.86	112.75	20.15	
		FINAL ACHM SURFACE COURSE LIFT	17.87					24.00	47.65	220.00		5.24										
19+52.87	19+88.82	TANGENT - C&G LT. AND RT. - RADIUS	35.95	VAR.	131.68	440.00	28.97	VAR.	131.68	220.00	14.48					VAR.	526.80	15.80	15.80	147.75	53.12	
		FINAL ACHM SURFACE COURSE LIFT	35.95					VAR.	131.68	220.00		14.48										
20+14.03	20+50.12	TANGENT - C&G LT. AND RT. - RADIUS	36.09	VAR.	139.66	440.00	30.73	VAR.	139.66	220.00	15.36					VAR.	558.70	16.76	16.76	155.00	55.94	
		FINAL ACHM SURFACE COURSE LIFT	36.09					VAR.	139.66	220.00		15.36										
DRIVEWAY @ STA. 105+65 C.L. CONST.																						
10+14.00	10+86.83	TANGENT - C&G LT. AND RT. - RADIUS	72.83					VAR.	212.19	220.00	23.34									121.50	88.49	
10+86.83	13+50.89	TANGENT - C&G LT. AND RT.	264.06					20.00	586.80	220.00	64.55									100.25	264.72	
13+50.89	13+69.42	TANGENT - C&G LT. AND RT. - RADIUS	18.53					VAR.	39.51	220.00	4.35									96.50	17.88	
PARK TRAIL																						
10+00.00	10+30.99	TANGENT - RADIUS	30.99					VAR.	41.70	220.00	4.59											
10+30.99	12+46.68	TANGENT	215.69					10.00	239.66	220.00	26.36											
12+46.68	12+65.85	TANGENT - RADIUS	19.17					VAR.	31.42	220.00	3.46											
TEMP. WIDENING																						
132+34.90	136+53.33	LT. OF C.L. CONST.	418.43	9.60	446.33	330.00	73.64	9.50	441.68	220.00	48.58					19.10	888.00	26.64	26.64	37.00	154.82	
TOTALS:					10687.15		2326.63		25452.47		1308.83	1505.00		1275.07	127.51		24411.06	732.33	859.84		6312.92	2257.02

BASIS OF ESTIMATE:
ACHM BINDER COURSE (1") - MINERAL AGGREGATE = 95.8%, ASPHALT BINDER (PG 64-22) = 4.2%
ACHM SURFACE COURSE (1/2") - MINERAL AGGREGATE = 94.6%, ASPHALT BINDER (PG 64-22) = 5.4%
ACHM SURFACE COURSE (1/2") - MINERAL AGGREGATE = 94.7%., ASPHALT BINDER (PG 70-22) = 5.3%

Nmax = 115 (PG 64-22)
Nmax = 160 (PG 70-22)

* ADDITIONAL AGGREGATE BASE COURSE CLASS 7 AND ACHM SURFACE COURSE (1/2") FOR GUARDRAIL WIDENING ARE QUANTIFIED SEPARATELY IN A QUANTITY BOX TITLED "BASE AND SURFACING GUARDRAIL WIDENING".

DRIVEWAYS

STATION	SIDE	LOCATION	WIDTH	** MODIFIED CURB		PORTLAND CEMENT CONCRETE DRIVEWAY	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)
			FEET	STA.	STA.	SQ. YD.	SQ. YD.	TON	TON
101+17	LT.	C.L. CONST.	12	100+91	101+43	25.00			
101+74	LT.	C.L. CONST.	12	101+47	101+99	26.00			
102+27	LT.	C.L. CONST.	12	102+01	102+53	30.00			
103+10	LT.	C.L. CONST.	12	102+84	103+36	38.00			
136+31	LT.	C.L. CONST.	16				100.00	11.00	40.83
137+52	RT.	C.L. CONST.	16				109.00	11.99	44.51
* ENTIRE PROJECT TEMPORARY DRIVES									50.00
TOTALS:						119.00	209.00	22.99	135.34

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2") - MINERAL AGGREGATE = 94.6%, ASPHALT BINDER (PG 64-22) = 5.4%
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

* QUANTITY ESTIMATED
SEE SECTION 104.03 OF THE STD. SPECS.
TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

** FOR INFORMATION ONLY
NOTE: FOR R.C. PIPE CULVERT INSTALLATIONS USE TYPE 3 BEDDING UNLESS OTHERWISE SPECIFIED.
NOTE: FOR C.M. PIPE CULVERT INSTALLATIONS USE TYPE 2 BEDDING UNLESS OTHERWISE SPECIFIED.

THE CONTRACTOR, WITH THE APPROVAL OF THE ENGINEER, WILL BE ALLOWED TO SUBSTITUTE A HIGHER PERFORMANCE GRADE ASPHALT SURFACE COURSE FOR DRIVEWAYS AND MINOR SIDE STREET CONSTRUCTION AT NO ADDITIONAL COST TO THE DEPARTMENT.

BASE AND SURFACING - GUARDRAIL WIDENING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		ACHM SURFACE COURSE (1/2")			
				TON / STATION	TON	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22
			FEET			FEET			TON
106+39.56	109+01.31	GUARDRAIL LT. OF HWY. 51	261.75	VAR.	235.96	VAR.	149.87	220.00	16.49
106+67.97	109+29.72	GUARDRAIL RT. OF HWY. 51	261.75	VAR.	235.75	VAR.	149.87	220.00	16.49
125+93.48	128+55.23	GUARDRAIL RT. OF HWY. 51	261.75	VAR.	90.23	VAR.	73.49	220.00	8.08
125+93.48	127+30.23	GUARDRAIL LT. OF HWY. 51	136.75	VAR.	205.73	VAR.	139.79	220.00	15.38
TOTALS:					767.67		513.02		56.44

BASIS OF ESTIMATE: ACHM SURFACE COURSE (1/2") - MINERAL AGGREGATE = 94.6%, ASPHALT BINDER (PG 64-22) = 5.4%
Nmax = 115 (PG 64-22)

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 14517
PAUL ROBBINS
8-13-14

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	35	172
				(1) 07316		QUANTITIES		55541

SCHEDULE OF BRIDGE QUANTITIES - JOB 070240

BRIDGE NUMBER	CODE NUMBER	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NUMBER	619	801	802	802	803	804	804	805	SP & 807	808	812	816	816	816	809	SP JOB 070240	SP JOB 070240	SP JOB 070240	SP JOB 070240
				ITEM	7' STEEL CHAIN LINK FENCE	UNCLASSIFIED EXCAVATION FOR STRUCTURES - BRIDGE	CLASS S CONCRETE - BRIDGE	CLASS S(AE) CONCRETE - BRIDGE	CLASS I PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL - BRIDGE (GRADE 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	(1) STEEL PILING (HP 12 x 53)	STRUCTURAL STEEL IN PLATE GIRDER SPANS (M 270, GRADE 50W)	ELASTOMERIC BEARINGS	BRIDGE NAME PLATE (TYPE D)	FILTER BLANKET	DUMPED RIPRAP	CONCRETE RIPRAP	ARMORED JOINT WITH NEOPRENE STRIP SEAL	DRILLED SHAFT (78" DIA.)	PERMANENT STEEL CASING (84" DIA.) (2)	CROSSHOLE SONIC LOGGING (78" DIA.)	CORING DRILLED SHAFT
				UNIT	LINEAR FOOT	CUBIC YARD	CUBIC YARD	CUBIC YARD	GALLON	POUND	POUND	LINEAR FOOT	POUND	CUBIC INCH	EACH	SQUARE YARD	CUBIC YARD	CUBIC YARD	LINEAR FOOT	LIN. FT.	LIN. FT.	EACH	LIN. FT.
07316	X971	Ouachita River	BENT NO. 1				81.83		0.6	9,072		606	938	4,980.9				28	51				
			BENT NO. 2			228	199.25			22,728		828		7,507.5									
			BENT NO. 3				131.68			20,368				7,873.1						121	75	2	61
			BENT NO. 4				138.72			27,201				9,937.8						117	87	2	
			BENT NO. 5			192	229.36			29,580		1,280		11,862.8									
			BENT NO. 6			233	230.88			31,121		1,458		7,044.4									
			BENT NO. 7			241	289.28			36,287		896		7,044.4									
			BENT NO. 8			164	210.31			26,614		1,080		10,058.2									
			BENT NO. 9			176	211.98			28,715		1,088		6,768.1									
			BENT NO. 10			172	200.94			26,999		1,184		6,768.1									
			BENT NO. 11				54.07		0.4	5,815		756	774	3,534.7		1,946	973		42				
			690' CONT. COMP. PLATE GIRDER UNIT					927.03	72.2		222,950		1,523,872		1								
			487' CONT. COMP. PLATE GIRDER UNIT		288			624.69	50.8		156,920		861,027										
			450' CONT. COMP. PLATE GIRDER UNIT					576.28	47.0		142,980		758,809										
			TOTALS FOR JOB NO. 070240		288	1,406	1,978.30	2,128.00	171.0	264,500.0	522,850	9,176	3,145,420	83,380.0	1	1,946	973	28	93	238	162	4	61

(1) These steel piles are required to be Grade 50 and to have special tips which will not be paid for directly but will be considered subsidiary to the item STEEL PILING (HP 12x53.)

The quantities shown for steel piling are for estimating and bidding purposes only. Actual quantities for steel piling will be determined in the field.

(2) The upper 10' of permanent steel casing shall be painted in accordance with Special Provision Job No. 070240 "Drilled Shaft Foundations." This work and materials shall not be paid for directly, but shall be considered incidental to the item "Permanent Steel Casing (84" Dia.)".

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11339
LARRY W. MILLER
8/29/14
BRIDGE ENGINEER

SCHEDULE OF BRIDGE QUANTITIES
OUACHITA RIVER
OUACHITA RIVER STR. &
APPRS. (ARKADELPHIA) (S)

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: BEG DATE: 02-14 FILENAME: b070240_QI.dgn
CHECKED BY: LWM DATE: 03-07-14 SCALE: NONE
DESIGNED BY: BEG DATE: 02-14

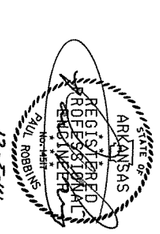
BRIDGE NO. 07316 DRAWING NO. 55541

SUMMARY OF QUANTITIES (SHEET 1 OF 2)

	ITEM NUMBER	ITEM		QUANTITY	UNIT
	201	CLEARING		30	STATION
	201	GRUBBING		30	STATION
	202	REMOVAL AND DISPOSAL OF CONCRETE DRIVEWAYS		62	SQ. YD.
	202	REMOVAL AND DISPOSAL OF CONCRETE FOUNDATIONS		4	EACH
	202	REMOVAL AND DISPOSAL OF CONCRETE POST		8	EACH
	202	REMOVAL AND DISPOSAL OF CURB AND GUTTER		916	LIN. FT.
	202	REMOVAL AND DISPOSAL OF FENCE		250	LIN. FT.
	202	REMOVAL AND DISPOSAL OF SIDEWALKS		343	SQ. YD.
	202	REMOVAL AND DISPOSAL OF PIPE CULVERTS		5	EACH
	202	REMOVAL AND DISPOSAL OF GATES		3	EACH
	SP & 202	REMOVAL AND DISPOSAL OF GUARDRAIL		208	LIN. FT.
	202	REMOVAL AND DISPOSAL OF SIGNS		4	EACH
	202	REMOVAL AND DISPOSAL OF STEPS		16	SQ. YD.
	202	REMOVAL AND DISPOSAL OF RETAINING WALLS		759	LIN. FT.
	SP & 207	STONE BACKFILL		13613	TON
	210	UNCLASSIFIED EXCAVATION		9992	CU. YD.
	SP & 210	COMPACTED EMBANKMENT		63491	CU. YD.
	SP & 210	SOIL STABILIZATION		50	TON
	SP	SELECT GRANULAR BACKFILL		2609	CU. YD.
	303	AGGREGATE BASE COURSE (CLASS 7)		7216	TON
	401	TACK COAT		960	GAL.
	SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")		2229	TON
	SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")		98	TON
	SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")		2738	TON
	SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")		75	TON
	SP, SS, & 407	ASPHALT BINDER (PG 70-22) IN ACHM SURFACE COURSE (1/2")		80	TON
	412	COLD MILLING ASPHALT PAVEMENT		1390	SQ. YD.
	SP & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC		50	TON
	504	APPROACH GUTTERS		51.37	CU. YD.
	505	PORTLAND CEMENT CONCRETE DRIVEWAY		119.00	SQ. YD.
	601	MOBILIZATION		1.00	LUMP SUM
	SP & 602	FURNISHING FIELD OFFICE		1	EACH
	603	MAINTENANCE OF TRAFFIC		1.00	LUMP SUM
	SP & 604	SIGNS		552	SQ. FT.
	604	BARRICADES		56	LIN. FT.
	604	TRAFFIC DRUMS		214	EACH
	604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		1484	LIN. FT.
	604	CONSTRUCTION PAVEMENT MARKINGS		2588	LIN. FT.
	604	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS		410	LIN. FT.
	604	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS		612	LIN. FT.
	604	REMOVAL OF PERMANENT PAVEMENT MARKINGS		3088	LIN. FT.
	605	CONCRETE DITCH PAVING (TYPE B)		230	SQ. YD.
	606	12" ZINC COATED (GALVANIZED) CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)		244	LIN. FT.
*	606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	156	LIN. FT.
*	606	18" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE	(ALTERNATE NO. 2)	156	LIN. FT.
	606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)		256	LIN. FT.
	606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		28	LIN. FT.
*	606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	370	LIN. FT.
*	606	24" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE	(ALTERNATE NO. 2)	370	LIN. FT.
	606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS V)		92	LIN. FT.
	606	48" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		240	LIN. FT.
	SP & 606	24" SIDE DRAIN		204	LIN. FT.
	606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		2	EACH
	606	48" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		6	EACH
	606	SELECTED PIPE BEDDING		100	CU. YD.
	609	DROP INLETS (TYPE E)		1	EACH
	609	DROP INLETS (TYPE MO)		8	EACH
	609	DROP INLETS (TYPE N3)		4	EACH
	609	DROP INLETS (TYPE ST)		1	EACH
	609	DROP INLET EXTENSIONS (4')		4	EACH
	609	DROP INLET EXTENSIONS (8')		4	EACH
	611	UNDERDRAIN OUTLET PROTECTORS		4	EACH
	611	4" PIPE UNDERDRAINS		400	LIN. FT.
	614	CONCRETE SPILLWAY (TYPE A)		3	EACH
	615	PAVEMENT REPAIR OVER CULVERTS (ASPHALT)		140	TON
	617	GUARDRAIL (TYPE A)		475	LIN. FT.
	617	GUARDRAIL (TYPE C)		50	LIN. FT.
	617	GUARDRAIL TERMINAL (TYPE 2)		4	EACH
	617	THRIE BEAM GUARDRAIL TERMINAL		4	EACH
	620	LIME		12	TON
	620	SEEDING		5.95	ACRE
	SS & 620	MULCH COVER		14.32	ACRE
	620	WATER		784.0	M. GAL.
	621	TEMPORARY SEEDING		8.37	ACRE
	621	SILT FENCE		5865	LIN. FT.
	621	SAND BAG DITCH CHECKS		556	BAG
	621	DIVERSION DITCH		1150	LIN. FT.
	621	DROP INLET SILT FENCE		414	LIN. FT.
	621	SEDIMENT REMOVAL AND DISPOSAL		347	CU. YD.
	621	PIPE FOR SLOPE DRAINS		100	LIN. FT.
	623	SECOND SEEDING APPLICATION		5.95	ACRE
	624	SOLID SODDING		512	SQ. YD.
	633	CONCRETE WALKS		174	SQ. YD.
	634	CONCRETE COMBINATION CURB AND GUTTER (TYPE A) (1' 6")		1979	LIN. FT.
	635	ROADWAY CONSTRUCTION CONTROL		1.00	LUMP SUM
	641	WHEELCHAIR RAMPS (TYPE 3)		6	SQ. YD.
	642	RUMBLE STRIPS IN ASPHALT SHOULDERS		2257	LIN. FT.
	718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (4")		2129	LIN. FT.
	718	REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (4")		1898	LIN. FT.
	719	THERMOPLASTIC PAVEMENT MARKING WHITE (4")		7242	LIN. FT.
	719	THERMOPLASTIC PAVEMENT MARKING YELLOW (4")		3914	LIN. FT.
*	SP & 719	INVERTED PROFILE THERMOPLASTIC CONTRAST PAVEMENT MARKING YELLOW (4")	(ALTERNATE NO. 1)	3254	LIN. FT.
*	SP	HIGH PERFORMANCE CONTRAST MARKING TAPE YELLOW (4")	(ALTERNATE NO. 2)	3254	LIN. FT.
	SP	RETAINING WALL		6491	SQ. FT.
	SP	RAMMED AGGREGATE PIERS		393	EACH
	804	REINFORCING STEEL-ROADWAY (GRADE 60)		4587	POUND
	816	DUMPED RIPRAP		49	CU. YD.

* DENOTES ALTERNATE BID ITEMS

SUMMARY OF QUANTITIES



12-5-14

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.AID DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
12/5/14				6	ARK.	070240	36	172

(2) SUMMARY OF QUANTITIES

JOB NO.

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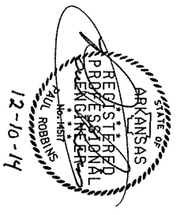
SUMMARY OF QUANTITIES (SHEET 2 OF 2)

ITEM NUMBER	ITEM	QUANTITY	UNIT
619	7' STEEL CHAIN LINK FENCE	288	LIN. FT.
636	BRIDGE CONSTRUCTION CONTROL	1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	1406	CU. YD.
802	CLASS S CONCRETE-BRIDGE	1978.30	CU. YD.
802	CLASS S(AE) CONCRETE-BRIDGE	2128.00	CU. YD.
803	CLASS 1 PROTECTIVE SURFACE TREATMENT	171.0	GAL.
804	REINFORCING STEEL-BRIDGE (GRADE 60)	264500	POUND
804	EPOXY COATED REINFORCING STEEL (GRADE 60)	522850	POUND
805	STEEL PILING (HP 12X53)	9176	LIN. FT.
SP	CORING DRILLED SHAFT	61	LIN. FT.
SP	DRILLED SHAFT (78" DIAMETER)	238	LIN. FT.
SP	PERMANENT STEEL CASING (84" DIAMETER)	162	LIN. FT.
SP	CROSSHOLE SONIC LOGGING (78" DIAMETER)	4	EACH
SP & 807	STRUCTURAL STEEL IN PLATE GIRDER SPANS (M270-GR50W)	3145420	POUND
808	ELASTOMERIC BEARINGS	83380.0	CU. IN.
809	ARMORED JOINT WITH NEOPRENE STRIP SEAL	93	LIN. FT.
812	BRIDGE NAME PLATE (TYPE D)	1	EACH
816	FILTER BLANKET	1946	SQ. YD.
816	DUMPED RIPRAP	973	CU. YD.
816	CONCRETE RIPRAP	28	CU. YD.

REVISIONS

DATE	REVISION	SHEET NUMBER
11/20/2014	REVISED STORM WATER POLLUTION PREVENTION PLAN	37
12/1/2014	REVISED SPECIAL DETAIL FOR RUMBLE STRIPS	11, 37
12/5/2014	REVISED EARTHWORK QUANTITIES	33, 36, 37
12/9/2014	REVISED SPACING OF TRANSVERSE BARS	37, 98

SUMMARY OF QUANTITIES AND REVISIONS



DATE REVISED	DATE FILED	DATE REVISED	DATE FILED
11/20/14	12/9/14		
12/1/14			
12/5/14			

(2) SUMMARY OF QUANTITIES AND REVISIONS

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.		37	172
JOB NO.		070240		

r070240.soq.dgn 12/11/2014 8:38:37 AM

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	38	172

(2) **SURVEY CONTROL DETAILS**

SURVEY CONTROL COORDINATES

Project Name: s070240s01
Date: 3/30/2011
Coordinate System: ARKANSAS STATE PLANE - SOUTH ZONE BASED ON GPS CONTROL, PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

POINT NAME	NORTHING	EASTING	ELEVATION	FEATURE	DESCRIPTION
20	1841616.4098	1000612.3162	189.04	CTL	5/8" REBAR W/ 2"CAP
21	1842128.1054	999929.9479	187.66	CTL	5/8" REBAR W/ 2"CAP
22	1842574.2402	999324.3129	186.22	CTL	5/8" REBAR W/ 2"CAP
23	1842885.8918	998701.5065	184.06	CTL	5/8" REBAR W/ 2"CAP
24	1842988.6652	997926.9864	180.90	CTL	5/8" REBAR W/ 2"CAP
25	1843193.1419	997149.5027	180.09	CTL	5/8" REBAR W/ 2"CAP
26	1843672.7482	996501.6320	180.04	CTL	5/8" REBAR W/ 2"CAP
27	1843573.4045	996027.8292	193.30	CTL	5/8" REBAR W/ 2"CAP
28	1843312.3370	995535.1363	194.61	CTL	5/8" REBAR W/ 2"CAP
29	1843275.6024	994833.5765	235.61	CTL	5/8" REBAR W/ 2"CAP
30	1843328.7316	994461.5322	228.37	CTL	5/8" REBAR W/ 2"CAP
100	1841292.7959	981263.4002	310.26	GPS	AHTD GPS 100005A,RTK ELEV
101	1841193.9985	1001232.1906	186.25	GPS	AHTD GPS 100012
102	1839260.8034	1002284.6589	182.71	GPS	AHTD GPS 100012A
900	1842362.1576	994300.5224	247.15	BM	NGS MARK 246
901	1843075.8041	993719.2891	248.02	BM	NGS MARK Y 136
902	1841795.1655	1000348.7086	192.60	BM	AHTD CAP 3" DISK IN BRIDGE
903	1842715.9636	999264.9326	189.26	TBM	TOP OF STEEL GATE POST
904	1843029.4342	998259.1413	186.79	TBM	TOP OF FH
905	1843447.4467	996918.1175	176.70	TBM	SQ CUT IN RR BR PILLAR BASE
906	1843456.0194	996077.4142	194.52	BM	BRASS CAP IN BR # 1412
907	1843360.0883	995571.9593	195.93	BM	BRASS CAP SW COR BR # 1412
908	1843267.6124	994730.2179	236.98	BM	SQ CUT IN STEPS
1101	1843372.6503	996876.5530	181.62	TV	8" SPIKE
1102	1843167.5749	996443.5252	182.40	TV	8" SPIKE
1103	1843448.7528	996148.2342	182.77	TV	8" SPIKE
1104	1843289.1412	996301.8222	182.69	TV	8" SPIKE
1105	1843185.7555	996357.8380	182.56	TV	8" SPIKE
1108	1843888.2671	995770.7722	181.92	TV	8" SPIKE
1109	1843391.4039	995492.8276	196.76	TV	8" SPIKE
1110	1843678.4503	995406.1212	197.60	TV	8" SPIKE
1111	1843161.6304	995700.4822	185.29	TV	8" SPIKE
1112	1843020.1844	995816.4590	184.66	TV	8" SPIKE
1113	1842900.3783	995883.8577	184.40	TV	8" SPIKE
1114	1843772.6253	995766.0168	165.74	TV	8" SPIKE
1120	1843167.6149	996443.4972	182.39	TV	8" SPIKE
1121	1843165.3317	996456.8594	182.80	TV	8" SPIKE
1122	1843294.2297	996485.3598	179.34	TV	8" SPIKE
1123	1843507.3798	996702.5202	181.29	TV	8" SPIKE
1124	1843599.1345	996860.6726	176.41	TV	8" SPIKE
1125	1843684.2828	997171.1250	194.32	TV	8" SPIKE
1126	1843961.7463	997493.1313	193.71	TV	8" SPIKE
1127	1844192.2679	997816.4357	192.96	TV	8" SPIKE
1128	1844467.2482	998132.7096	192.93	TV	8" SPIKE
1129	1843812.3046	997099.0869	179.49	TV	8" SPIKE
1130	1843894.0686	997196.5241	181.76	TV	8" SPIKE
1131	1843335.0681	997043.2891	178.66	TV	8" SPIKE
1132	1843480.3305	997266.1740	180.71	TV	8" SPIKE
1133	1843452.5481	997461.1166	181.97	TV	8" SPIKE
1134	1843350.9305	997654.2440	180.32	TV	8" SPIKE
1135	1843400.9057	997575.8323	181.01	TV	8" SPIKE
1136	1843260.0368	997527.6292	180.94	TV	8" SPIKE
1137	1843201.4168	997806.5609	178.96	TV	8" SPIKE

(other markings indicated in the point description of the individual point).

SURVEY CONTROL NOTES

ALL DISTANCES ARE GROUND.
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT.
A PROJECT CAF OF 0.999915151 HAS BEEN USED TO COMPUTE THE ABOVE GROUND COORDINATES.
THIS CAF IS INTENDED FOR USE WITHIN THE PROJECT LIMITS.
GRID DISTANCE = GROUND DISTANCE X CAF.
GRID COORDINATES ARE STORED UNDER FILE NAME.s070240gi.CTL
HORIZONTAL DATUM: NAD 83 (1997)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT.

BASIS OF BEARINGS:
ARKANSAS STATE PLANE GRID BEARINGS - 0302-SOUTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 100012-100012A & 100005A
CONVERGENCE ANGLE: 0-34-54 LEFT
LT:34-07-12.56 LG:093-02-20.95
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

CURVE NUMBER	LOCATION	P.I.	NORTHING	EASTING	Δ	D	R	T	L	E	P.C.	P.T.
1	HWY. 51 RELOC.	101+75.00	1843303.6103	994764.5232	4°30'05" Right	3°00'00"	1909.86'	75.06'	150.05'	1.47'	100+99.94	102+49.99
2	ACCESS ROAD	42+97.03	1843193.5560	997163.0386	35°21'53" Left	10°00'00"	572.96'	182.66'	353.65'	28.41'	41+14.37	44+68.02
3	ACCESS ROAD	49+12.92	1843130.8908	997787.4622	90°00'00" Right	57°17'45"	100.00'	100.00'	157.08'	41.42'	48+12.92	49+70.00
4	HWY. 51 RELOC.	136+26.27	1842958.9750	998198.6233	4°38'32" Right	3°00'00"	1909.86'	77.41'	154.74'	1.57'	135+48.86	137+03.60
5	HWY. 51 RELOC.	145+06.19	1842800.5250	999064.2418	26°14'29" Right	3°15'00"	1762.95'	410.92'	807.43'	47.26'	140+95.27	149+02.70
6	DRIVEWAY @ STA. 105+65 LT. C.L. CONST.	10+64.00	1843328.3392	995159.0416	90°00'00" Right	143°14'22"	40.00'	40.00'	62.83'	16.57'	10+24.00	10+86.83
7	DRIVEWAY @ STA. 105+65 LT. C.L. CONST.	13+46.80	1843298.3859	995457.5090	95°43'51" Left	143°14'22"	40.00'	44.22'	66.83'	19.62'	13+02.58	13+69.41
8	PARK TRAIL	10+77.01	1843102.1311	995642.7602	69°45'26" Right	57°17'45"	100.00'	69.71'	121.75'	21.90'	10+07.30	11+29.05

CONSTRUCTION C.L.

	HORIZONTAL ALIGNMENT		HWY. 51 RELOC.	
DESCRIPTION	POINT	STATION	NORTHING	EASTING
POB	8000	100+00.00	1843307.3651	994589.5635
PC	8001	100+99.94	1843305.2208	994689.4787
PT	8003	102+49.99	1843296.1150	994839.2098
PC	8004	135+48.86	1842966.7051	998121.5975
PT	8006	137+03.60	1842945.0363	998274.7708
PC	8007	140+95.27	1842874.5142	998660.0362
PT	8009	149+02.70	1842555.4403	999394.0753
POE	8010	153+61.46	1842281.8219	999762.3091

	HORIZONTAL ALIGNMENT		ACCESS ROAD	
DESCRIPTION	POINT	STATION	NORTHING	EASTING
POB	8011	41+14.37	1843313.6220	997025.3833
PT	8013	44+68.02	1843175.3164	997344.7861
PC	8014	48+12.92	1843140.8763	997687.9620
PT	8016	49+70.00	1843031.3906	997777.4767
POE	8017	50+00.00	1843001.5406	997774.4810

	HORIZONTAL ALIGNMENT		2ND STREET	
DESCRIPTION	POINT	STATION	NORTHING	EASTING
POB	8018	18+83.00	1843154.5728	995080.9312
POE	8019	22+33.00	1843504.4318	995090.8638

	HORIZONTAL ALIGNMENT		DRIVEWAY @ STA. 105+65 LT. C.L. CONST.	
DESCRIPTION	POINT	STATION	NORTHING	EASTING
POB	8020	10+00.00	1843264.6591	995152.6508
PC	8021	10+24.00	1843288.5391	995155.0474
PT	8023	10+86.23	1843324.3450	995198.8416
PC	8024	13+02.58	1843302.8011	995413.5148
POE	8026	13+69.41	1843342.6011	995457.5090

	HORIZONTAL ALIGNEMNT		PARK TRAIL	
DESCRIPTION	POINT	STATION	NORTHING	EASTING
POB	8027	10+00.00	1843106.8384	995719.6264
PC	8028	10+07.30	1843106.3919	995712.3353
PT	8030	11+29.05	1843165.9346	995614.6897
POE	8031	12+74.35	1843298.9272	995556.1792

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 14517
PAUL ROBBINS
8-13-14

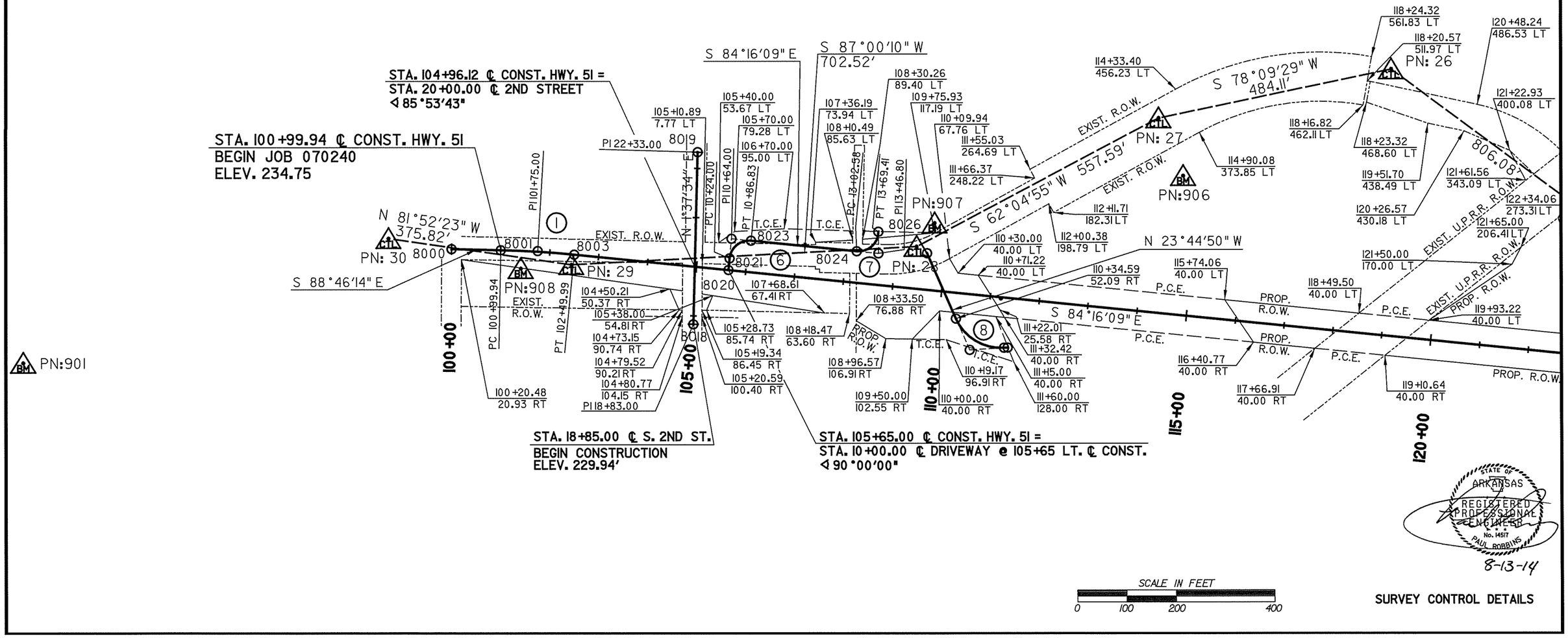
SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		070240	39	172

(2) **SURVEY CONTROL DETAILS**

BASIS FOR BEARING: GRID NORTH FROM AHTD GPS, SEE NOTES



STATE OF ARKANSAS
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PAUL ROBBINS

8-13-14

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	40	172

(2) SURVEY CONTROL DETAILS

BASIS FOR BEARING: GRID NORTH FROM AHTD GPS, SEE NOTES

EXIST. U.P.R.R. R.O.W.

EXIST. U.P.R.R. R.O.W.

118+24.32
561.83 LT

118+20.57
511.97 LT
PN: 26

120+48.24
486.53 LT

122+29.34
407.97 LT

121+22.93
400.08 LT

123+44.62
380.42 LT

STA. 41+14.37 ℄ ACCESS RD.
BEGIN CONSTRUCTION
ELEV. 179.91'

118+23.32
468.60 LT

119+51.70
438.49 LT

120+26.57
430.18 LT

806.08'
N 53°29'17" W

PN:905

121+61.56
343.09 LT

122+34.06
273.31 LT

121+65.00
206.41 LT

124+37.87
298.78 LT

125+43.67
238.32 LT

125+70.00
306.00 LT

45+00

126+50.00
240.00 LT

8011

121+50.00
170.00 LT

EXIST. U.P.R.R. R.O.W.

PROP. R.O.W.

122+70.87
196.73 LT

EXIST. P.C.E.

123+36.45
161.61 LT

S 48°54'16" E

(2)

PROP. ROW

PC 48+12.92

131+92.93
178.00 LT

S 5°43'51" W

PI 49+12.92

136+04.30
66.16 LT

P.C.E.

119+93.22
40.00 LT

124+12.07
148.35 LT

124+65.00
40.00 LT

PN: 25

8013

S 84°16'09" E

8014

PI 42+97.03

132+50.00
65.74 LT

134+14.82
52.76 LT

PI 136+26.27

STA. 137+03.60 ℄ CONST. HWY. 51
END JOB 070240
ELEV. 184.27

PN:904

EXIST. R.O.W.

N 75°15'54" W
803.92'

8016 PT 49+70.00

PROP. R.O.W.

138+45.45
41.49 LT

119+10.64
40.00 RT

124+65.00
40.00 RT

S 84°16'09" E

8017

PN: 24

8004

141+00.24
42.07 LT

EXIST. R.O.W.

N 82°26'29" W

PN: 23

120+00

125+00

PROP. R.O.W.

125+20.00
145.00 RT

PT 44+68.02

130+00

8006
781.31'
S 79°37'37" E

PROP. R.O.W.

EXIST. R.O.W.

8007

PI 145+06.19

(5)

135+00.00
55.00 RT

PC 135+48.86

(4)

PT 137+03.60

138+25.00
38.55 RT

137+70.00
62.00 RT

135+00

140+00

PC 140+95.27

140+99.74
37.93 RT

S 79°37'37" E

N 63°25'00" W
696.43'

PN:903

145+00

8009

PN: 22

PT 149+02.70

STA. 132+00.00 ℄ CONST. HWY. 51=
STA. 50+00.00 ℄ ACCESS ROAD
◁ 90°00'00"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 14517
PAUL ROBBINS
8-13-14

SCALE IN FEET
0 100 200 400

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	41	172

(2) SURVEY CONTROL DETAILS

STA. 137+03.60 ℄ CONST. HWY. 51
END JOB 070240
ELEV. 184.27

PN:904 TBM

PI 136+26.27

8004

8006

N 82°26'29" W 781.31'

EXIST. R.O.W.

EXIST. R.O.W.

PN: 23 CTL

S 79°37'37" E

8007

PT 137+03.60

PC 140+95.27

140+00

PI 145+06.19

(4)

(5)

PN:903 TBM

N 63°25'00" W 696.43'

145+00

8009

PN: 22 CTL

PT 149+02.70

S 53°23'08" E

N 53°37'23" W 752.22'

150+00

8010

PN: 21 CTL

N 53°08'04" W 852.91'

PN:902 BM

PN: 20 CTL

BASIS FOR BEARING,
GRID NORTH FROM AHTD
GPS, SEE NOTES

SCALE IN FEET
0 100 200 400

STATE OF ARKANSAS
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No. 14517
PAUL ROBBINS
8-13-14

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	42	172

(2) PLAN AND PROFILE SHEETS

REMOVAL & DISPOSAL OF SIDEWALKS

STA. 100+99.94 TO STA. 104+79.80 LT. ℄ CONST. = 160 SQ. YD.
STA. 105+03.27 TO STA. 108+52.73 LT. ℄ CONST. = 183 SQ. YD.

REMOVAL & DISPOSAL OF CURB AND GUTTER

STA. 100+30.00 RT. TO STA. 104+89.35	RT. ℄ CONST. =	494 LIN. FT.
STA. 100+30.00 LT. TO STA. 101+08.92	LT. ℄ CONST. =	83 LIN. FT.
STA. 101+24.40 LT. TO STA. 101+66.03	LT. ℄ CONST. =	42 LIN. FT.
STA. 101+99.62 LT. TO STA. 102+19.54	LT. ℄ CONST. =	20 LIN. FT.
STA. 102+36.04 LT. TO STA. 103+05.21	LT. ℄ CONST. =	70 LIN. FT.
STA. 103+20.33 LT. TO STA. 104+76.60	LT. ℄ CONST. =	157 LIN. FT.
STA. 105+08.06 RT. TO STA. 105+45.40	LT. ℄ CONST. =	50 LIN. FT.

REMOVAL & DISPOSAL OF CONCRETE DRIVEWAYS

STA. 101+18.00 LT. ℄ CONST. = 16 SQ. YD.
STA. 101+72.00 LT. ℄ CONST. = 17 SQ. YD.
STA. 102+27.50 LT. ℄ CONST. = 17 SQ. YD.
STA. 103+10.00 LT. ℄ CONST. = 12 SQ. YD.

REMOVAL & DISPOSAL OF STEPS

STA. 101+24.50 RT. ℄ CONST. = 2 SQ. YD.
STA. 101+48.00 RT. ℄ CONST. = 1 SQ. YD.
STA. 101+80.50 RT. ℄ CONST. = 2 SQ. YD.
STA. 102+37.25 RT. ℄ CONST. = 2 SQ. YD.
STA. 102+43.00 RT. ℄ CONST. = 1 SQ. YD.
STA. 102+89.00 RT. ℄ CONST. = 1 SQ. YD.
STA. 102+90.00 RT. ℄ CONST. = 2 SQ. YD.
STA. 104+39.00 RT. ℄ CONST. = 2 SQ. YD.
STA. 105+09.61 RT. ℄ CONST. = 2 SQ. YD.
STA. 105+12.00 RT. ℄ CONST. = 1 SQ. YD.

REMOVAL & DISPOSAL OF RETAINING WALLS

STA. 100+20.00	TO	STA. 104+89.00	RT. ℄ CONST. =	525 LIN. FT.
STA. 101+08.77	TO	STA. 101+12.34	LT. ℄ CONST. =	4 LIN. FT.
STA. 102+55.00	TO	STA. 104+82.00	LT. ℄ CONST. =	230 LIN. FT.

REMOVAL & DISPOSAL OF GUARDRAIL

STA. 109+32.98 TO STA. 109+86.46 LT. ℄ CONST. = 77 LIN. FT.
STA. 109+46.64 TO STA. 109+71.62 LT. ℄ CONST. = 27 LIN. FT.

REMOVAL & DISPOSAL OF SIGNS

STA. 106+62.00 LT. ℄ CONST. = 1 EACH
STA. 107+50.00 LT. ℄ CONST. = 1 EACH
STA. 107+83.47 LT. ℄ CONST. = 1 EACH
STA. 107+86.00 RT. ℄ CONST. = 1 EACH

LOCATION		GUARDRAIL (TYPE A)	GUARDRAIL TERMINAL (TYPE 2)	THRIE BEAM GUARDRAIL TERMINAL
STA. 106+82.56 TO STA. 109+01.31 ℄ CONST. LT.	-	150 LIN. FT.	1 EACH	1 EACH
STA. 107+10.97 TO STA. 109+29.72 ℄ CONST. RT.	-	150 LIN. FT.	1 EACH	1 EACH

STA. 101+17 ℄ CONST. CONSTRUCT
P.C.C. DRIVEWAY LT.= 25 SQ. YDS.

STA. 101+74 ℄ CONST. CONSTRUCT
P.C.C. DRIVEWAY LT.= 26 SQ. YDS.

STA. 102+27 ℄ CONST. CONSTRUCT
P.C.C. DRIVEWAY LT.= 30 SQ. YDS.

STA. 103+10 ℄ CONST. CONSTRUCT
P.C.C. DRIVEWAY LT.= 38 SQ. YDS.

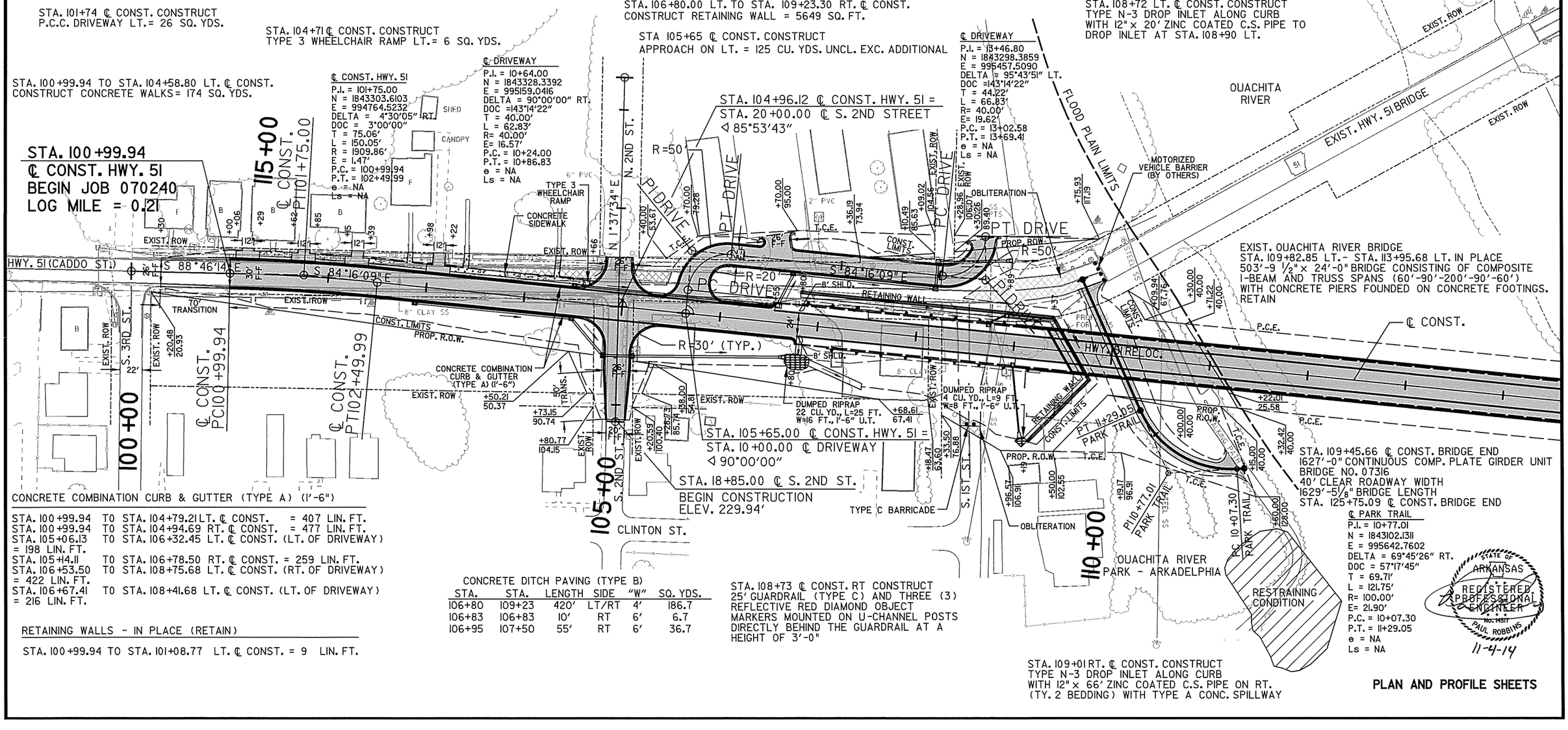
STA. 104+71 ℄ CONST. CONSTRUCT
TYPE 3 WHEELCHAIR RAMP LT.= 6 SQ. YDS.

STA. 100+99.94 TO STA. 104+58.80 LT. ℄ CONST.
CONSTRUCT CONCRETE WALKS= 174 SQ. YDS.

STA. 106+80.00 LT. TO STA. 109+23.30 RT. ℄ CONST.
CONSTRUCT RETAINING WALL = 5649 SQ. FT.

STA 105+65 ℄ CONST. CONSTRUCT
APPROACH ON LT. = 125 CU. YDS. UNCL. EXC. ADDITIONAL

STA. 108+72 LT. ℄ CONST. CONSTRUCT
TYPE N-3 DROP INLET ALONG CURB
WITH 12" x 20' ZINC COATED C.S. PIPE TO
DROP INLET AT STA. 108+90 LT.



CONCRETE COMBINATION CURB & GUTTER (TYPE A) (1'-6")

STA. 100+99.94	TO STA. 104+79.21 LT. ℄ CONST.	=	407 LIN. FT.
STA. 100+99.94	TO STA. 104+94.69 RT. ℄ CONST.	=	477 LIN. FT.
STA. 105+06.13	TO STA. 106+32.45 LT. ℄ CONST. (LT. OF DRIVEWAY)	=	198 LIN. FT.
STA. 105+14.11	TO STA. 106+78.50 RT. ℄ CONST.	=	259 LIN. FT.
STA. 106+53.50	TO STA. 108+75.68 LT. ℄ CONST. (RT. OF DRIVEWAY)	=	422 LIN. FT.
STA. 106+67.41	TO STA. 108+41.68 LT. ℄ CONST. (LT. OF DRIVEWAY)	=	216 LIN. FT.

RETAINING WALLS - IN PLACE (RETAIN)

STA. 100+99.94 TO STA. 101+08.77 LT. ℄ CONST. = 9 LIN. FT.

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	LENGTH	SIDE	"W"	SQ. YDS.
106+80	109+23	420'	LT/RT	4'	186.7
106+83	106+83	10'	RT	6'	6.7
106+95	107+50	55'	RT	6'	36.7

STA. 108+73 ℄ CONST. RT CONSTRUCT
25' GUARDRAIL (TYPE C) AND THREE (3)
REFLECTIVE RED DIAMOND OBJECT
MARKERS MOUNTED ON U-CHANNEL POSTS
DIRECTLY BEHIND THE GUARDRAIL AT A
HEIGHT OF 3'-0"

STA. 109+01 RT. ℄ CONST. CONSTRUCT
TYPE N-3 DROP INLET ALONG CURB
WITH 12" x 66' ZINC COATED C.S. PIPE ON RT.
(TY. 2 BEDDING) WITH TYPE A CONC. SPILLWAY

PLAN AND PROFILE SHEETS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	43	172

(2) PLAN AND PROFILE SHEETS

STA. 102+90.00 ℄ CONST. CONSTRUCT
DROP INLET ON RT. H= 7'-11 1/16"
WITH 4' EXTENSION AND 18" x 156'
PIPE CULVERT TO DROP INLET ON RT.
TYPE MO DROP INLET= 4' DIA.
TYPE C DROP INLET= 4'-0" x 3'-0"
18" R.C. PIPE (CLASS III) (TY. 3 BEDDING)= 156 LIN. FT.
18" SLPPMCCS PIPE (TY. 2 BEDDING)= 156 LIN. FT.

STA. 104+50.00 ℄ CONST. CONSTRUCT
DROP INLET ON LT. H= 9'-2 1/16"
WITH 8' EXTENSION AND 18" x 204'
R.C. PIPE CULVERT TO DROP INLET ON LT.
TYPE MO DROP INLET= 4' DIA.
TYPE C DROP INLET= 4'-0" x 3'-0"
18" R.C. PIPE (CLASS IV) (TY. 3 BEDDING)= 204 LIN. FT.

STA. 104+50.00 ℄ CONST. CONSTRUCT
DROP INLET ON RT. H= 5'-0"
WITH 8' EXTENSION AND 24" x 46'
PIPE CULVERT TO DROP INLET ON RT.
TYPE MO DROP INLET= 4' DIA.
TYPE C DROP INLET= 4'-0" x 3'-0"
24" R.C. PIPE (CLASS III) (TY. 3 BEDDING)= 46 LIN. FT.
24" SLPPMCCS PIPE (TY. 2 BEDDING)= 46 LIN. FT.

STA. 106+58.20 ℄ CONST. CONSTRUCT
DROP INLET ON LT. H= 9'-3 5/8"
WITH 24" x 34' PIPE CULVERT TO DROP INLET ON LT.
TYPE ST DROP INLET= 4'-0" x 3'-0"
24" R.C. PIPE (CLASS III) (TY. 3 BEDDING)= 34 LIN. FT.
24" SLPPMCCS PIPE (TY. 2 BEDDING)= 34 LIN. FT.

STA. 108+90.00 ℄ CONST. CONSTRUCT
TYPE E DROP INLET LT. = 3'-0" x 2'-0" x H= 16'-3 7/8"
WITH 18" X 52' R.C. PIPE OUTLET THROUGH RETAINING WALL
18" R.C. PIPE (CLASS IV) (TY. 3 BEDDING) = 52 LIN. FT.

STA. 19+50.00 ℄ S. 2ND ST.
(STA. 104+84.87, 51' RT. ℄ CONST.)
CONSTRUCT DROP INLET ON LT. H= 5'-5 3/16"
WITH 8' EXTENSION AND 24" x 28'
R.C. PIPE CULVERT TO DROP INLET ON RT.
TYPE MO DROP INLET= 4' DIA.
TYPE C DROP INLET= 4'-0" x 3'-0"
24" R.C. PIPE (CLASS III) (TY. 3 BEDDING)= 28 LIN. FT.

STA. 19+50.00 ℄ S. 2ND ST.
(STA. 105+14.80, 49' RT. ℄ CONST.)
CONSTRUCT DROP INLET ON RT. H= 8'-9"
WITH 8' EXTENSION AND 24" x 148'
R.C. PIPE CULVERT WITH FES ON RT.
TYPE MO DROP INLET= 4' DIA.
TYPE C DROP INLET= 4'-0" x 3'-0"
24" R.C. PIPE (CLASS III) (TY. 3 BEDDING)= 148 LIN. FT.
24" FES = 1EACH
24" SLPPMCCS PIPE (TY. 2 BEDDING)= 148 LIN. FT.

STA. 11+51.83 ℄ DRIVEWAY
(STA. 106+70.00, 51' LT. ℄ CONST.)
CONSTRUCT DROP INLET ON RT. H= 10'-0"
WITH 4' EXTENSION, OPENING IN THE BACK OF D.I.
AND 24" x 142' PIPE CULVERT TO DROP INLET ON LT.
TYPE MO DROP INLET= 4' DIA.
TYPE C DROP INLET= 4'-0" x 3'-0"
24" R.C. PIPE (CLASS III) (TY. 3 BEDDING)= 142 LIN. FT.
24" SLPPMCCS PIPE (TY. 2 BEDDING)= 142 LIN. FT.

STA. 12+96.83 ℄ DRIVEWAY
(STA. 108+15.00, 77' LT. ℄ CONST.)
CONSTRUCT DROP INLET ON RT. H= 5'-1"
WITH 4' EXTENSION AND 24" x 68'
R.C. PIPE CULVERT WITH FES ON LT.
TYPE MO DROP INLET= 5' DIA.
TYPE C DROP INLET= 4'-0" x 4'-0"
24" R.C. PIPE (CLASS V) (TY. 3 BEDDING)= 68 LIN. FT.
24" FES = 1EACH

STA. 12+96.83 ℄ DRIVEWAY
(STA. 108+15.00, 51' LT. ℄ CONST.)
CONSTRUCT DROP INLET ON LT. H= 4'-9"
WITH 4' EXTENSION AND 24" x 24'
R.C. PIPE CULVERT TO DROP INLET ON LT.
TYPE MO DROP INLET= 5' DIA.
TYPE C DROP INLET= 4'-0" x 4'-0"
24" R.C. PIPE (CLASS V) (TY. 3 BEDDING)= 24 LIN. FT.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 14577
PAUL ROBBINS
8-13-14

PLAN AND PROFILE SHEETS

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				6	ARK.			
				JOB NO.		070240	44	172
				(2)	PLAN AND PROFILE SHEETS			

STREAM NAME	STATION	STREAM TYPE	TOP OF CHANNEL
OUACHITA RIVER	STA. 111+20-STA. 115+30	5 CFS	173.0 ft. msl

1629'-5 1/8" TOTAL BRIDGE LENGTH

690'-0" CONTINUOUS COMP. PLATE GIRDER (122'-145'-240'-183')

BEGIN BRIDGE STA. 109+45.66'

P.V.T. 110+50.00 ELEV. 217.05'

P.G. ELEV. 222.82'

FINISHED GRADE

+1.65%

P.V.I. 100+99.94 ELEV. 234.75'

-1.20%

P.V.C. 101+50.00 ELEV. 234.15'

V.C. = 300.00'
G1 = -1.20%
G2 = -4.50%
E = -1.24'
K = 91
(50 MPH)

-4.50%

P.V.I. 103+00.00 ELEV. 232.35'

P.V.R.C. 104+50.00 ELEV. 225.60'

℄ 2ND ST.

+50
TOP D.I. 225.80 LT.

+58.20
TOP D.I. 218.14 LT.

V.C. = 600.00'
G1 = -4.50%
G2 = 1.65%
E = 4.61'
K = 98
(50 MPH)

+70
TOP D.I. 213.58 LT.
(+52 ℄ DRIVE RT.)

+90
TOP D.I. 213.31 LT.

70' TRANSITION

18"X204' R.C. PIPE CULVERT
S=-1.00%

+50
F.L. D.I. 216.60 LT.

EXISTING GROUND

STA. 100+99.94 ℄ CONST.
BEGIN JOB 070240
ELEV. 234.75'

+58.20
F.L. D.I. 208.84 LT.
F.L. INLET 214.56 LT.

P.V.I. 107+50.00
ELEV. 212.10'

+15
TOP D.I. 202.29 LT.
(+97 ℄ DRIVE LT. & RT.)

24"X34' PIPE CULVERT
S=-1.00%

24"X68' R.C. PIPE CULVERT W/ FES
S=-1.34%

+70
F.L. D.I. 203.58 LT.
F.L. INLET 208.50 LT.

+90
F.L. OUTLET 196.30 LT.
(+55 ℄ DRIVE RT.)

24"X142' PIPE CULVERT
S=-3.74%

+41
F.L. OUTLET 196.33 LT.

24"X24' R.C. PIPE CULVERT
S=-1.42%

+90
F.L. D.I. 196.99 LT.

+15 (RT. OF ℄ DRIVE)
F.L. D.I. 197.55 LT.
F.L. INLET 198.27 LT.

+15 (LT. OF ℄ DRIVE)
F.L. D.I. 197.21 LT.
F.L. INLET 197.21 LT.

18"X52' R.C. PIPE CULVERT
S=-1.27%

100-YEAR DESIGN H.W. ELEV. 188.93'

DRAINAGE STRUCTURES LT. OF ℄ CONST.

P.V.C. 101+50.00 ELEV. 234.15'

+90
TOP D.I. 231.59 RT.

+50
TOP D.I. 225.80 RT.

P.V.I. 103+00.00 ELEV. 232.35'

+85 (+50 S. 2ND. ST. LT.)
TOP D.I. 225.10 RT.

+15 (+50 S. 2ND. ST. RT.)
TOP D.I. 225.10 RT.

24"X46' PIPE CULVERT
S=-1.00%

24"X28' R.C. PIPE CULVERT
S=-1.00%

24"X148' R.C. PIPE CULVERT W/ FES
S=-1.00%

P.V.I. 100+99.94 ELEV. 234.75'

-1.20%

-4.50%

+90
F.L. D.I. 223.64 RT.

+50
F.L. D.I. 220.80 RT.
F.L. INLET 221.30 RT.

18"X156' PIPE CULVERT
S=-1.50%

P.V.R.C. 104+50.00 ELEV. 225.60'

+15
F.L. D.I. 216.35 RT.
F.L. INLET 219.39 RT.

+70
F.L. OUTLET 214.87 RT.

+85
F.L. D.I. 219.67 RT.
F.L. INLET 220.34 RT.

EXISTING GROUND

DRAINAGE STRUCTURES RT. OF ℄ CONST.

BM: 908 SQ CUT IN STEPS
36.27' RT. OF STA. 101+42.28
ELEVATION - 236.98'

BM: 907 BRASS CAP SW COR BR #1412
136.82' LT. OF STA. 109+72.68
ELEVATION - 195.93'

PLAN AND PROFILE SHEETS
STA. 100+00 TO STA. 114+00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 14517
PAUL ROBBINS
8-13-14

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		070240	45	172

(2) PLAN AND PROFILE SHEETS

GUARDRAIL - IN PLACE ALONG EXIST. HWY. 51 (RETAIN)

STA. 120+67.34 TO STA. 122+46.78 LT. ℄ CONST.= 203 LIN. FT.
STA. 122+67.41 TO STA. 123+19.36 LT. ℄ CONST.= 78 LIN. FT.
STA. 122+06.22 TO STA. 122+63.13 LT. ℄ CONST.= 78 LIN. FT.
STA. 122+83.30 TO STA. 124+43.11 LT. ℄ CONST.= 203 LIN. FT.

STA. 122+60 LT. ℄ CONST. - IN PLACE
24" X 58' R.C. PIPE CULVERT
UNDER EXIST. HWY. 51
RETAIN

STA. 42+60 ℄ ACCESS RD. CONSTRUCT
TRI. 48" X 80' R.C. PIPE CULVERT
WITH FES LT. & RT. @ 60° LT. FWD. SKEW
Q25 = 563 CFS D.A. = 978 ACRES
R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 80 LIN. FT.

STA. 127+09 ℄ CONST. - IN PLACE
TRI. 48" X 70' C.M. PIPE CULVERT 94' LT.
REMOVE

STA. 125+32 324' LT. ℄ CONST. - IN PLACE
TRI. 48" X 111' C.M. PIPE CULVERT
LT. SIDE DRAIN
RETAIN

STA. 124+18 445' LT. ℄ CONST. - IN PLACE
ABANDONED BRIDGE CROSSING
RETAIN

℄ ACCESS RD.
P.I. = 42+97.03
N = 1843193.5560
E = 997163.0386
DELTA = 35°21'53" LT.
DOC = 10°00'00"
T = 182.66'
L = 353.65'
R = 572.96'
E = 28.4'
P.C. = 41+14.37
P.T. = 44+68.02
e = 0.094 FT./FT.
Ls = 250'

STA. 41+14.37 ℄ ACCESS RD.
BEGIN CONSTRUCTION
ELEV. 179.91'

STA. 42+00 ℄ ACCESS RD. CONSTRUCT
APPROACH ON LT.= 0 CU. YDS.

ADDITIONAL UNCLASS. EXCAVATION FOR INLET 298 CU. YD.

STA. 114+19 307' LT. ℄ CONST. - IN PLACE
BILLBOARD SIGN
RETAIN

STA. 114+31 285' LT. ℄ CONST. - IN PLACE
BILLBOARD SIGN
RETAIN

STA. 114+90 LT. ℄ CONST. CONSTRUCT
25' GUARDRAIL (TYPE C) AND THREE (3)
REFLECTIVE RED DIAMOND OBJECT
MARKERS MOUNTED ON U-CHANNEL POSTS
DIRECTLY BEHIND THE GUARDRAIL AT A
HEIGHT OF 3'-0"

REMOVAL & DISPOSAL OF GUARDRAIL ALONG EXIST. HWY. 51

STA. 113+91.66 TO STA. 114+13.24 LT. ℄ CONST. = 77 LIN. FT.
STA. 114+06.40 TO STA. 114+29.22 LT. ℄ CONST. = 27 LIN. FT.

STA. 126+22 LT. ℄ CONST. CONSTRUCT
TYPE N-3 DROP INLET ALONG CURB
WITH 12" x 66' ZINC COATED C.S. PIPE ON LT.
(TY. 2 BEDDING) WITH TYPE A CONC. SPILLWAY

ADDITIONAL UNCLASS. EXCAVATION FOR OUTLET 24 CU. YD.

STA. 109+45.66 ℄ CONST. BRIDGE END
1627'-0" CONTINUOUS COMP. PLATE GIRDER UNIT
BRIDGE NO. 07316
40' CLEAR ROADWAY WIDTH
1629'-5⅛" BRIDGE LENGTH
STA. 125+75.09 ℄ CONST. BRIDGE END

EXIST. RAILROAD BRIDGE
STA. 115+40 RT. - STA. 125+20 LT. ℄ CONST. - IN PLACE
1375' X 11'-2" BRIDGE CONSISTING OF STEEL TRESTLE
SPANS (3 @ 132'-6") AND CONC. SLAB SPANS
(VAR. 16' TO 19') WITH A 27'-0" W-BEAM SPAN OVER
EXIST. HWY. 51 WITH CONC. PIERS FOUNDED ON CONC. FOOTINGS
RETAIN

LOCATION	GUARDRAIL (TYPE A)	GUARDRAIL TERMINAL (TYPE 2)	THRIE BEAM GUARDRAIL TERMINAL
STA. 125+93.48 TO STA. 128+12.23 ℄ CONST. LT.	150 LIN. FT.	1 EACH	1 EACH
STA. 125+93.48 TO STA. 126+87.23 ℄ CONST. RT.	25 LIN. FT.	1 EACH	1 EACH

STA. 126+22 RT. ℄ CONST. CONSTRUCT
TYPE N-3 DROP INLET ALONG CURB
WITH 12" x 92' ZINC COATED C.S. PIPE ON RT.
(TY. 2 BEDDING) WITH TYPE A CONC. SPILLWAY

STATE OF ARKANSAS
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PAUL ROBBINS
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PLAN AND PROFILE SHEETS

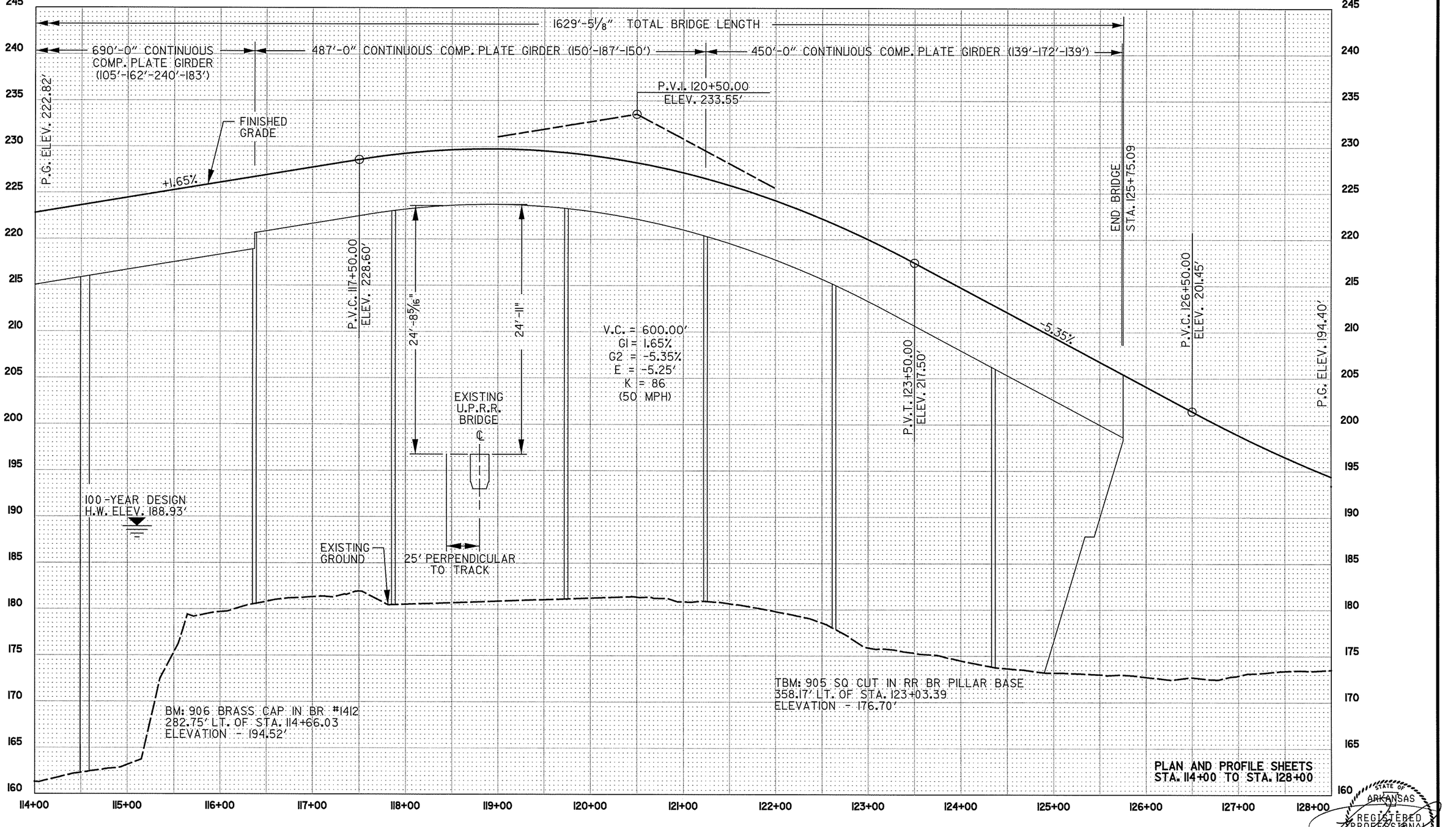
120+00

125+00

45+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	46	172
				(2)	PLAN AND PROFILE SHEETS			

STREAM NAME	STATION	STREAM TYPE	TOP OF CHANNEL
OUACHITA RIVER	STA. 111+20-STA. 115+30	5 CFS	173.0 ft. msl



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 14517
PAUL ROBBINS

8-13-14

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		070240	47	172

(2) PLAN AND PROFILE SHEETS

℄ ACCESS RD.
P.I. = 49+12.92
N = 1843130.8908
E = 997787.4622
DELTA = 90°00'00" RT.
DOC = 57°17'45"
T = 100.00'
L = 157.08'
R = 100.00'
E = 41.42'
P.C. = 48+12.92
P.T. = 49+70.00
e = NA
Ls = NA

STA. 136+31 ℄ CONST. - IN PLACE
24"X60' PIPE CULVERT LT. SIDE DRAIN
REMOVE AND INSTALL
24"X60' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 13 CU. YDS.

℄ CONST. HWY. 51
P.I. = 136+26.27
N = 1842958.9750
E = 998198.6233
DELTA = 4°38'32" RT.
DOC = 3°00'00"
T = 77.41'
L = 154.74'
R = 1909.86'
E = 1.57'
P.C. = 135+48.86
P.T. = 137+03.60
e = 0.057 FT./FT.
Ls = 250'

STA. 137+03.60 ℄ CONST. HWY. 51
END JOB 070240
ELEV. 184.27'

STA. 139+71 ℄ CONST. - IN PLACE
24" X 28' PIPE CULVERT
LT. SIDE DRAIN
RETAIN

45+00

℄ ACCESS RD.
PT 44+68.02

℄ ACCESS RD.
PC 48+12.92

℄ ACCESS RD.
P149+12.92

+82.93
178.00

CONST. LIMITS
PROP. ROW
STAGE 2
24"X84' TEMP. PIPE CULVERT
PROP. ROW
6' SHLD.
S 84°16'09" E
22'
6' SHLD.
ACCESS ROAD
EXIST. ROW
EXIST. ROW
R=53'
℄ ACCESS RD.
PT 49+70.00
S 5°43'51" W
OBLITERATION
CONST. LIMITS
PROP. R.O.W.

POND

+50.00
65.74

WETLANDS

+14.82
52.16

R=120'
EXIST. ROW
PROP. R.O.W.

+04.30
66.16

℄ CONST.
PI136+26.27

8' SHLD.
16'
PROP. R.O.W.
CONST. LIMITS
S 84°16'09" E
HWY. 51 RELOC.
CONST. LIMITS
PROP. R.O.W.

+45.45
41.49

SHED

6' SHLD.
EXIST. ROW
S 79°37'37" E
EXIST. HWY. 51
GRAVEL
16'
8' SHLD.
6" WATER LINE
6' SHLD.
EXIST. ROW

+25.00
38.55

+70.00
62.00

200' TRANSITION

℄ CONST.
PC135+48.86

℄ CONST.
PT137+03.60

℄ CONST.
PC140+95.27

130+00

135+00

140+00

STA. 132+00.00 ℄ CONST. HWY. 51 =
STA. 50+00.00 ℄ ACCESS ROAD
◁ 90°00'00"

STA. 137+52 ℄ CONST. - IN PLACE
PIPE CULVERT RT. SIDE DRAIN
REMOVE AND INSTALL
24"X60' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 43 CU. YDS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 14517
PAUL ROBBINS
8-13-14

PLAN AND PROFILE SHEETS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	48	172
				(2)	PLAN AND PROFILE SHEETS			

STA. 133+61.36 BEGIN SUPERELEVATION
STA. 136+11.36 MAX. SUPERELEVATION (0.057 FT./FT.)
STA. 136+41.10 MAX. SUPERELEVATION (0.057 FT./FT.)
STA. 138+91.10 END SUPERELEVATION

V.C. = 600.00'
G1 = -5.35%
G2 = -0.15%
E = 3.90'
K = 115
(55 MPH)

P.G. ELEV. 194.40'

P.V.I. 129+50.00
ELEV. 185.40'

P.V.T. 132+50.00
ELEV. 184.95'

P.V.I. 137+03.60
ELEV. 184.27'

STA. 137+03.60 ℄ CONST.
END JOB 070240
ELEV. 184.27'

FINISHED GRADE

EXISTING GROUND

-5.35%

-0.15%

+0.640% LT. DITCH GRADE

+0.600% RT. DITCH GRADE

+1.380% RT. DITCH GRADE

200' TRANSITION

+00.00
172.94' RT.

+50.00
176.39' RT.

+50.00
178.10' LT.

+00.00
179.69' RT.
180.98' LT.

TBM: 903 TOP OF STEEL GATE POST
60.74' LT. OF STA. 147+09.76
ELEVATION = 189.26'

TBM: 904 TOP OF FH
80.44' LT. OF STA. 136+74.26
ELEVATION = 186.79'

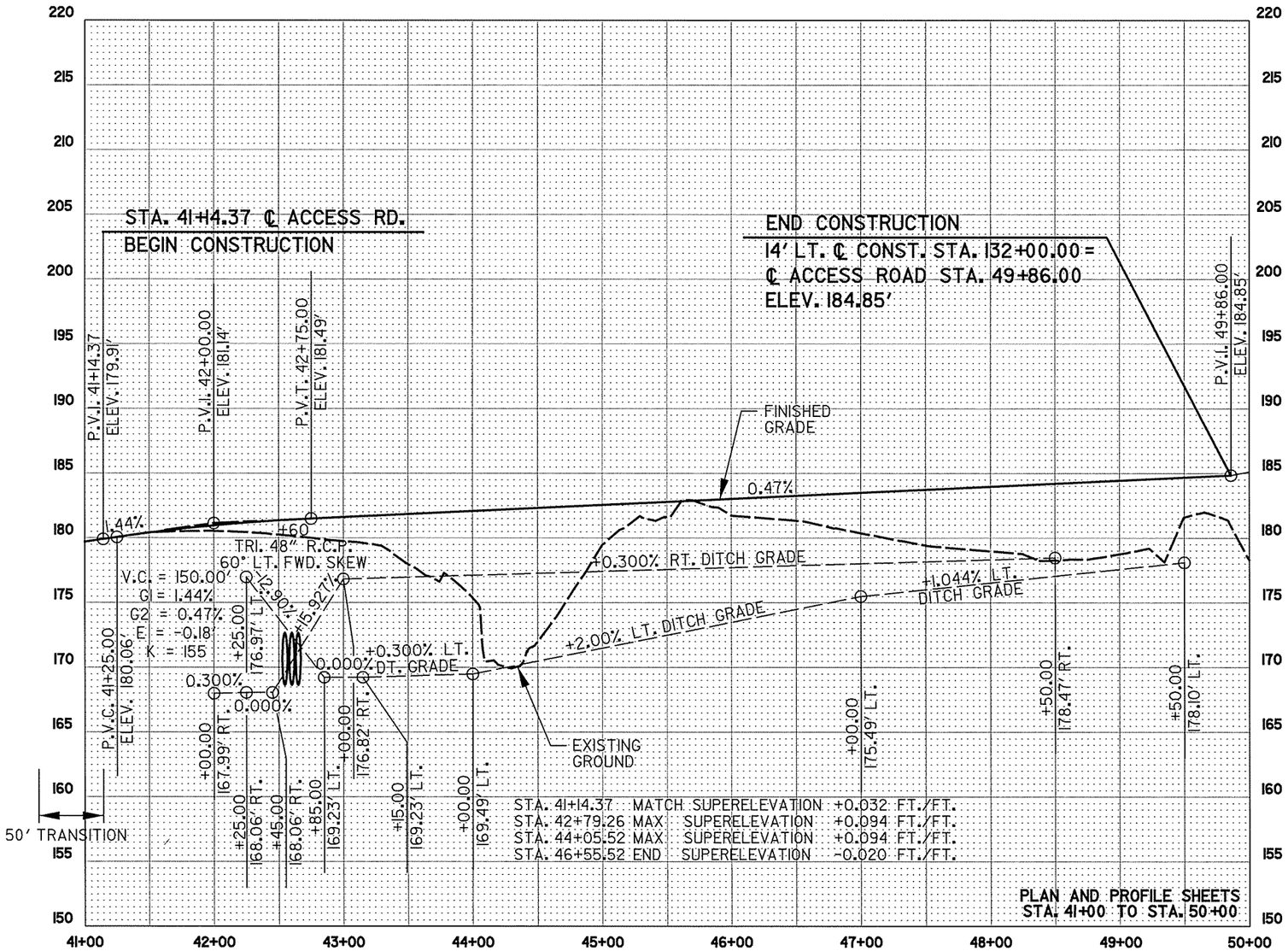
PLAN AND PROFILE SHEETS
STA. 128+00 TO STA. 142+00

250 245 240 235 230 225 220 215 210 205 200 195 190 185 180 175 170 165

128+00 129+00 130+00 131+00 132+00 133+00 134+00 135+00 136+00 137+00 138+00 139+00 140+00 141+00 142+00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 14517
PAUL ROBBINS
8-13-14

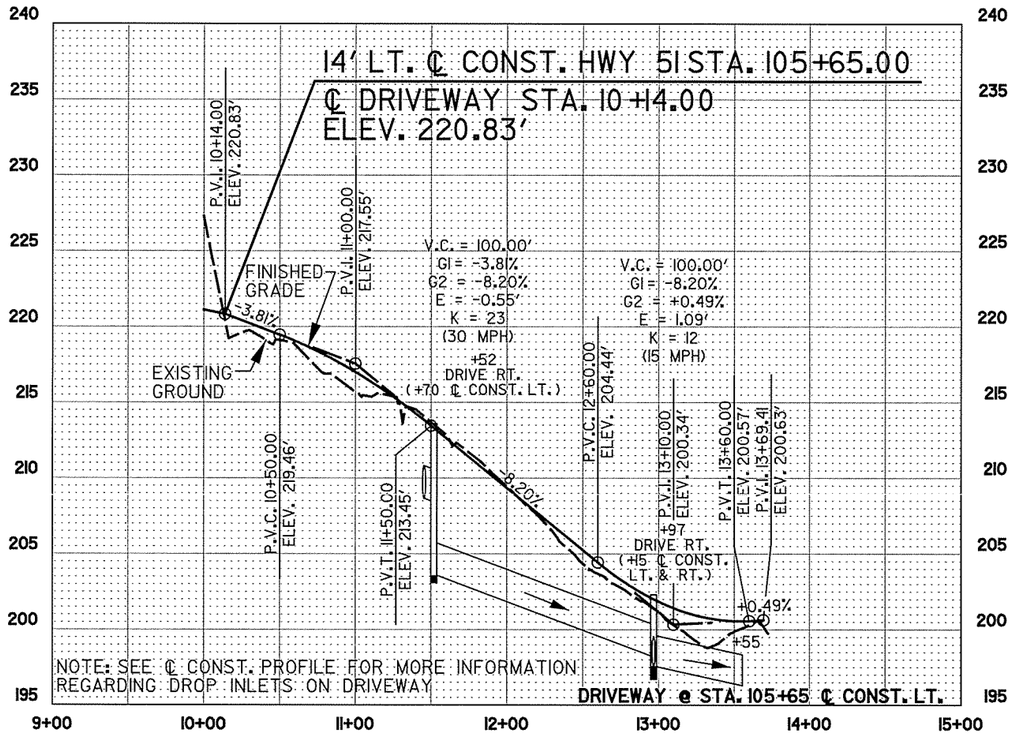
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	49	172
				(2)	PLAN AND PROFILE SHEETS			

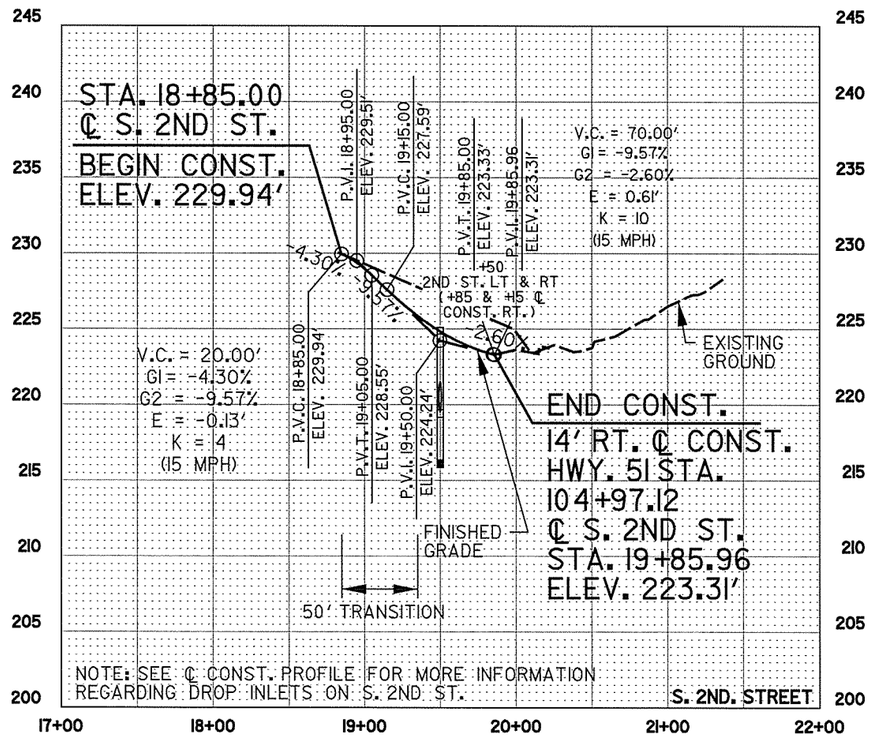


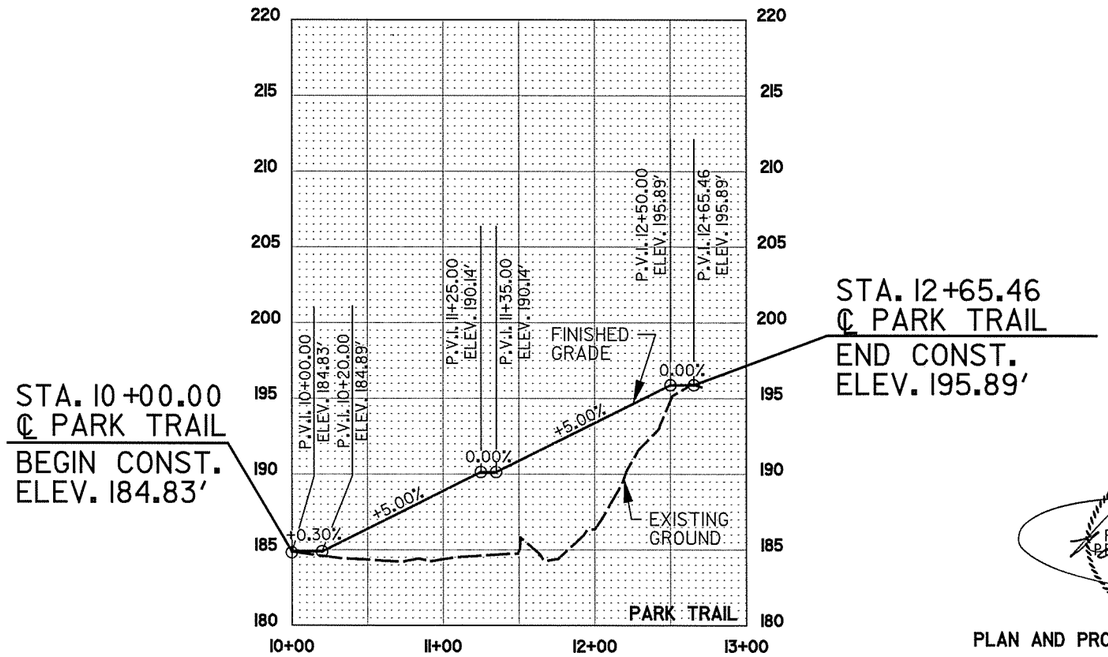
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 14517
PAUL ROBBINS
8-13-14

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	50	172

(2) PLAN AND PROFILE SHEETS







STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 14517
PAUL ROBBINS
8-13-14

PLAN AND PROFILE SHEETS

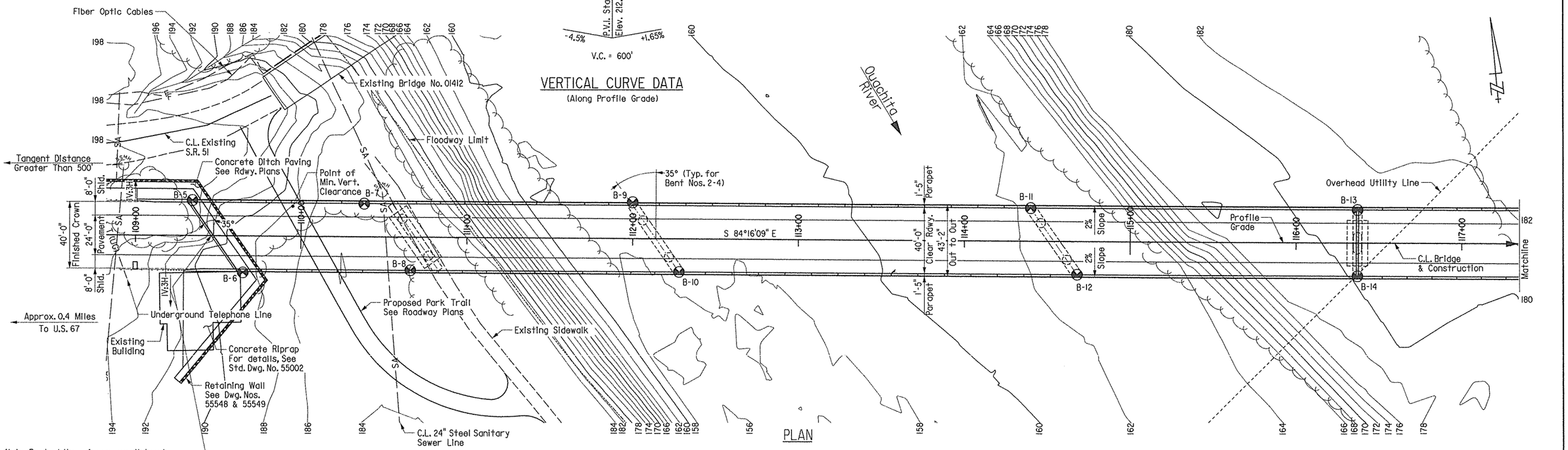
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	51	172
				(1) 07316		Layout		55542

For R/W Data, See Roadway Plans

Note: Use Type Special I Approach Gutters and Type N-3 drains at beginning of bridge.

P.V.I. Sta. 107+50.00
Elev. 212.10
-4.5% +1.65%
V.C. = 600'

VERTICAL CURVE DATA
(Along Profile Grade)



Note: Bents 1 thru 4 are parallel and skewed 35° from a line perpendicular to centerline bridge. Bents 5 thru 11 are perpendicular to the C.L. Bridge.

Total Length of Bridge = 1,629'-5⅛"

690'-0" Continuous Composite Plate Girder Unit (122'-145'-240'-183')

1'-4" | C.L. 5" Finger Joint

C.L. 2¾" Strip Seal Joint (4" Movement Rating)

Slope Intercept Sta. 109+16.46 Elev. 215.76

Begin Bridge Sta. 109+45.66 Elev. 215.89

VPT Sta. 110+50.00

C.L. Bent Sta. 110+69.00 Elev. 217.36

C.L. Bent Sta. 112+14.00 Elev. 219.76

C.L. Bent Sta. 114+54.00 Elev. 223.72

C.L. Bent Sta. 116+37.00 Elev. 226.74

8'-10⅝" **

Concrete Parapet Railing

Guardrail - See Roadway Plans

Proposed Grade Line @ C.L. Bridge

Existing Groundline @ C.L. Bridge

Proposed Groundline @ C.L. Bridge

14'-3⅛" Min. Vert. Clear

43'-6"

33'-6"

11'-4⅛"

Design H.W. To Low Steel (Near Bent 11)

Q50 Design H.W. El. 187.8

Exp. | Fix.

24" San. Sewer

60'-6"

58'-6"

47'-6"

48'-6"

60' Piles

54' Piles

23' Piles

40' Piles

Elev. 174.98

Tip Elev. 106.87

Tip Elev. 108.75

Elev. 169.32

15'-0" Min. Rock Penetra.

23'-0" Min. Rock Penetra.

** Working Point @ C.L. Bent @ Profile Grade To Low Side Top Of Cap.

For Soil Boring Legend, See Dwg. No. 55544

Note: Unless noted otherwise, stations and elevations shown are taken at working point along C.L. Bridge. [3]

[1] 78" Dia. Rock Socketed Drilled Shaft

[2] 84" Dia. Permanent Casing: Paint upper 10' in accordance with Job SP "Drilled Shaft Foundations"

[3] See Rounding Detail on Dwg. No. 55593.

BENT NO.

Sta. 109+33
22' Lt. of S.R. 51
4.7 - 5.7, N = 30
9.7 - 10.7, N = 19
14.7 - 15.7, N = 0
19.7 - 20.7, N = 6
24.7 - 25.7, N = 2
29.2 - 29.6, N = 100+
34.7 - 35.6, N = 100+
39.7 - 40.7, N = 67
44.7 - 45.3, N = 100+
45.3 - 50.3, SCR% = 0, RQD% = 0
50.3 - 55.3, SCR% = 34, RQD% = 0
55.3 - 60.3, SCR% = 80, RQD% = 0
60.3 - 65.3, SCR% = 48, RQD% = 0
65.3 - 70.3, SCR% = 92, RQD% = 72
70.3 - 75.3, SCR% = 100, RQD% = 98
75.3 - 80.3, SCR% = 100, RQD% = 100
80.3 - 85.3, SCR% = 88, RQD% = 80
85.3 - 90.3, SCR% = 100, RQD% = 100
109+00

Sta. 109+65
22' Rt. of S.R. 51
4.6 - 6.6, Uu = 0.23 ksf
9.6 - 11.6, No Recovery
12.1 - 13.1, N = 0
15.1 - 16.0, N = 6
20.1 - 21.1, N = 0
25.1 - 26.1, N = 3
30.1 - 31.1, N = 69
35.1 - 36.1, N = 62
39.6 - 39.8, N = 100+
45.1 - 46.1, N = 66
46.1 - 50.7, SCR% = 96, RQD% = 0
50.7 - 55.7, SCR% = 94, RQD% = 26
55.7 - 60.7, SCR% = 100, RQD% = 100
60.7 - 65.7, SCR% = 100, RQD% = 98
65.7 - 70.7, SCR% = 100, RQD% = 82
70.7 - 75.7, SCR% = 96, RQD% = 94
75.7 - 80.7, SCR% = 98, RQD% = 96
110+00

Sta. 110+38
20' Lt. of S.R. 51
0.5 - 1.5, N = 4
3.5 - 4.5, N = 6
8.5 - 9.5, N = 9
13.5 - 14.5, N = 10
18.5 - 19.5, N = 5
23.5 - 24.5, N = 13
28.5 - 29.5, N = 41
30.5 - 31.5, N = 54
32.2 - 32.2, N = 100+
32.2 - 36.0, SCR% = 0, RQD% = 0
38.0 - 38.2, N = 100+
43.5 - 44.5, N = 80
48.5 - 49.5, N = 61
53.0 - 53.4, N = 100+
59.0 - 59.2, N = 100+
64.0 - 64.3, N = 100+
68.2 - 71.2, SCR% = 47, RQD% = 17
71.2 - 76.2, SCR% = 92, RQD% = 50
76.2 - 80.2, SCR% = 75, RQD% = 25

Projected Ahead From Sta. 110+66
20' Rt. of S.R. 51
0.5 - 1.5, N = 9
3.5 - 4.5, N = 13
8.0 - 10.0, Uu = 0.39 ksf
13.5 - 14.5, N = 13
18.5 - 19.5, N = 3
23.5 - 24.5, N = 9
28.0 - 28.4, N = 100+
33.5 - 33.9, N = 100+
38.0 - 38.2, N = 100+
43.5 - 43.9, N = 100+
50.5 - 51.3, N = 100+
55.0 - 55.3, N = 100+
60.0 - 60.3, N = 100+
65.0 - 65.3, N = 100+
70.0 - 70.0, N = 100+
75.0 - 75.0, N = 100+
80.0 - 80.1, N = 100+
111+00

Sta. 112+00
20' Lt. of S.R. 51
1.5 - 2.5, N = 16
6.5 - 7.5, N = 30
16.5 - 16.9, N = 100+
21.5 - 22.4, N = 100+
26.0 - 26.4, N = 100+
26.4 - 31.4, SCR% = 66, RQD% = 28
31.4 - 36.4, SCR% = 98, RQD% = 44
36.4 - 41.4, SCR% = 94, RQD% = 52
41.4 - 46.4, SCR% = 96, RQD% = 38

Sta. 112+28
20' Rt. of S.R. 51
17.0 - 17.3, N = 100+
22.5 - 22.9, N = 100+
27.5 - 28.5, N = 69
28.5 - 31.5, SCR% = 83, RQD% = 50
31.5 - 36.5, SCR% = 92, RQD% = 26
36.5 - 41.5, SCR% = 100, RQD% = 32
41.5 - 46.5, SCR% = 96, RQD% = 90
46.5 - 48.5, SCR% = 90, RQD% = 90
112+00

Sta. 114+40
20' Lt. of S.R. 51
19.7 - 20.7, N = 100+
24.2 - 24.3, N = 100+
26.7 - 27.0, N = 100+
31.7 - 32.1, N = 100+
36.7 - 37.4, N = 70
37.4 - 38.1, SCR% = 86, RQD% = 0
38.1 - 43.1, SCR% = 100, RQD% = 66
43.1 - 48.1, SCR% = 96, RQD% = 64
48.1 - 53.1, SCR% = 98, RQD% = 64
53.7 - 57.7, SCR% = 78, RQD% = 78
113+00

Sta. 114+68
20' Rt. of S.R. 51
14.5 - 15.5, N = 56
19.5 - 20.4, N = 100+
24.5 - 24.9, N = 100+
29.5 - 30.4, N = 100+
34.0 - 38.0, SCR% = 33, RQD% = 0
38.0 - 43.0, SCR% = 76, RQD% = 60
43.0 - 48.0, SCR% = 98, RQD% = 86
48.0 - 53.0, SCR% = 98, RQD% = 94
53.0 - 57.0, SCR% = 100, RQD% = 80
114+00

Projected Back From Sta. 116+37
20' Lt. of S.R. 51
4.6 - 6.6, ST
9.6 - 11.6, ST
14.8 - 15.1, N = 10
20.1 - 21.1, N = 12
25.1 - 26.1, N = 14
30.1 - 30.6, N = 100+
35.1 - 36.1, N = 54
41.1 - 41.2, N = 100+
45.1 - 46.1, N = 63
50.1 - 51.1, N = 31
55.1 - 55.3, N = 100+
59.6 - 60.0, N = 100+
60.0 - 65.0, SCR% = 64, RQD% = 62
65.0 - 70.0, SCR% = 100, RQD% = 98
70.0 - 75.0, SCR% = 98, RQD% = 98
75.0 - 80.0, SCR% = 100, RQD% = 96
80.0 - 85.0, SCR% = 96, RQD% = 78
116+00

Projected Ahead From Sta. 116+37
20' Rt. of S.R. 51
4.3 - 6.3, Uu = 1.27 ksf
9.3 - 11.3, ST
14.8 - 15.8, N = 36
19.8 - 20.8, N = 10
24.8 - 25.8, N = 11
29.8 - 30.8, N = 18
34.8 - 35.8, N = 55
39.8 - 40.5, N = 100+
43.8 - 44.8, N = 70
49.8 - 50.8, N = 37
54.8 - 55.0, N = 100+
55.0 - 59.5, SCR% = 100, RQD% = 100
59.5 - 64.5, SCR% = 98, RQD% = 98
64.5 - 69.5, SCR% = 100, RQD% = 100
69.5 - 74.5, SCR% = 98, RQD% = 98
74.5 - 79.5, SCR% = 100, RQD% = 100

ELEVATION

STATE OF ARKANSAS
Larry W. Miller
REGISTERED PROFESSIONAL ENGINEER
No. 11339
8/29/14
LARRY W. MILLER
BRIDGE ENGINEER

SHEET 1 OF 3
LAYOUT OF BRIDGE OVER OUACHITA RIVER
OUACHITA RIVER STR. & APPRS. (ARKADELPHIA) (S)

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: LWM DATE: 10-11
CHECKED BY: LWM DATE: 03-07-14
DESIGNED BY: LWM DATE: 10-11

FILENAME: b070240 L1.dgn
SCALE: 1" = 30'

BRIDGE NO. 07316

DRAWING NO. 55542

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	52	172
				07316		Layout		55543

Limits Of Excavation See Roadway Drawings

Dumped Riprap (By Others)

Toe Of Slope

Top Of Slope

RR R.O.W.

50'-0"

30'-0" (measured at centerline of track from edge of proposed bridge deck to center of existing pile)

Existing Bent (Typ.)

10" Water Line

45°53'58"

S.R. 51 Sta. 118+80.30 = UP RR Mile Post 410.35

S 84°16'09" E

39'-5" Clear

Point of Min. Vert. Clearance

Retaining Wall (By Others)

1V:2H Typ.

20'-0"

C.L. UPRR Bridge

Underground Telephone Cable

Waterline For Sawmill

Matchline

B-15 B-16 B-17 B-18 B-19 B-20 B-21 B-22 B-23 B-24 B-25 B-26

118+00 119+00 120+00 121+00 122+00 123+00 124+00 125+00 126+00

1'-5" Parapet

40'-0" Clear Rdwy.

43'-2" Out to Out

2% Slope

Profile Grade

Toe Of Fill Slope

Limits of Class 7 Fill See Detail A on Dwg. No. 55544

C.L. Bridge & Construction

1V:3H Or Flatter

Tangent Distance Greater Than 500'

10' Berm Elev. 188.0

10'-0" (Typ.)

Approx. 0.8 Miles To S.R. 8

Dumped Riprap 1'-6" thick with Filter Blanket. See Std. Dwg. 55001 for details. Top of riprap elev 188.0.

For full limits of riprap, see Dwg. No. 55544

Note: Use Type Special 2 Approach Gutters and Type N-3 drains at end of bridge.

[1] Measured from the edge of proposed bridge deck to center of existing pile.

VERTICAL CURVE DATA

(Along Profile Grade)

P.V.I. Sta. 120+50.00
Elev. 233.55
+1.65% -5.35%
V.C. = 600'

PLAN

1,629'-5⅛"

487'-0" Continuous Composite Plate Girder Unit (150'-187'-150')

450'-0" Continuous Composite Plate Girder Unit (139'-172'-139')

C.L. 5" Finger Joint

C.L. 2¾" Strip Seal Joint (4" Movement Rating)

See SP Job 070240 "Excavation & Embankment"

VPC Sta. 117+50.00

VPT Sta. 123+50.00

C.L. Bent Sta. 117+87.00 Elev. 229.13

C.L. Bent Sta. 119+74.00 Elev. 229.37

C.L. Bent Sta. 121+24.00 Elev. 226.61

C.L. Bent Sta. 122+63.00 Elev. 221.71

C.L. Bent Sta. 124+35.00 Elev. 212.95

End Bridge Sta. 125+75.09 Elev. 205.46

Chain link fence on top of closed parapet railing over railroad ROW on each side of bridge. See Dwg. No. 55596

Concrete Parapet Railing

Proposed Grade Line @ C.L. Bridge

Slope Intercept Sta. 125+93.57 Elev. 204.47

Guardrail - See Roadway Plans

Low Point of Girder Elev. 199.20

Design High Water To Low Steel = 11'-4⅝"

Embankment (By Others)

Q50 Design H.W. El. 187.8

Proposed Groundline @ C.L. Bridge

Existing Groundline @ C.L. Bridge

See Detail A Dwg. No. 55544

Fix. Exp.

51'-0" 64'-6" 49'-0" 47'-6" 42'-6"

24'-6⅝" MVC 24'-11" MVC

25'-0" Perp. To Track C.L. UPRR Bridge

El. 182.5 El. 182.4 El. 176.0 El. 178.1 El. 180.3 El. 180.8 El. 177.5 El. 177.5 El. 173.9 El. 173.7 El. 172.9 El. 172.8

Elev. 171.17 Elev. 157.89 Elev. 170.65 Elev. 167.26 Elev. 163.50

27' Piles 16' Piles 27' Piles 32' Piles 37' Piles 53' Piles 50' Piles

BENT NO. 6 7 8 9 10 11

Projected Back From Sta. 117+87 20' Lt. of S.R. 51
4.5 - 6.5, Qu = 0.41 ksf
9.5 - 11.5, ST
13.0 - 16.0, N = 2
20.0 - 21.0, N = 3
25.0 - 26.0, N = 15
30.0 - 31.0, N = 35
34.5 - 34.6, N = 100+
40.0 - 41.0, N = 77
45.0 - 45.9, N = 100+
50.0 - 51.0, N = 60
55.0 - 56.0, N = 35
59.5 - 59.9, N = 100+
59.9 - 60.3, SCR% = 75, RQD% = 0
60.3 - 65.3, SCR% = 100, RQD% = 94
65.3 - 70.3, SCR% = 100, RQD% = 96
70.3 - 75.3, SCR% = 100, RQD% = 100
75.3 - 80.3, SCR% = 100, RQD% = 100

Projected Ahead From Sta. 117+87 20' Rt. of S.R. 51
5.2 - 6.2, N = 3
9.7 - 11.7, ST
14.7 - 16.7, ST
20.2 - 21.2, N = 2
25.2 - 26.2, N = 17
30.2 - 31.2, N = 28
34.7 - 34.9, N = 100+
34.9 - 35.7, SCR% = 50, RQD% = 0
35.7 - 40.7, SCR% = 14, RQD% = 14
40.7 - 45.7, SCR% = 0, RQD% = 0
45.7 - 50.7, SCR% = 56, RQD% = 0
50.7 - 55.7, SCR% = 76, RQD% = 0
55.7 - 60.7, SCR% = 100, RQD% = 58
60.7 - 65.7, SCR% = 98, RQD% = 84
65.7 - 70.7, SCR% = 98, RQD% = 92
70.7 - 75.7, SCR% = 88, RQD% = 70
75.7 - 80.7, SCR% = 88, RQD% = 74

Projected Back From Sta. 119+63 20' Rt. of S.R. 51
5.5 - 6.5, N = 6
10.5 - 11.5, N = 7
13.5 - 16.5, N = 11
16.7 - 16.8, N = 100+
16.8 - 20.5, SCR% = 27, RQD% = 12
20.5 - 25.5, SCR% = 0, RQD% = 0
26.0 - 27.0, N = 41
28.0 - 28.3, N = 100+
28.3 - 29.8, SCR% = 67, RQD% = 50
29.8 - 34.8, SCR% = 10, RQD% = 0
35.3 - 36.3, N = 10
40.3 - 41.3, N = 68
45.3 - 46.3, N = 32
50.3 - 50.8, N = 100+
54.8 - 55.2, N = 100+
55.8 - 59.8, SCR% = 100, RQD% = 95
59.8 - 64.8, SCR% = 100, RQD% = 98
64.8 - 69.8, SCR% = 100, RQD% = 94
69.8 - 74.8, SCR% = 100, RQD% = 100
74.8 - 77.3, SCR% = 100, RQD% = 100

Projected Back From Sta. 121+24 20' Lt. of S.R. 51
4.5 - 6.0, Qu = 0.85 ksf
9.5 - 11.5, ST
12.0 - 13.0, N = 0
15.0 - 16.0, N = 2
20.0 - 21.0, N = 11
25.0 - 26.0, N = 31
30.0 - 31.0, N = 57
34.5 - 34.6, N = 100+
40.0 - 41.0, N = 70
44.5 - 44.7, N = 100+
44.7 - 45.3, SCR% = 50, RQD% = 0
45.3 - 50.3, SCR% = 18, RQD% = 0
50.3 - 55.3, SCR% = 82, RQD% = 0
55.3 - 60.3, SCR% = 88, RQD% = 10
60.3 - 65.3, SCR% = 100, RQD% = 100
65.3 - 70.3, SCR% = 100, RQD% = 100
70.3 - 75.3, SCR% = 100, RQD% = 100
75.3 - 80.3, SCR% = 94, RQD% = 92

Projected Ahead From Sta. 119+65 40' Lt. of S.R. 51
4.0 - 5.0, N = 12
9.0 - 10.0, N = 5
14.0 - 15.0, N = 2
19.0 - 20.0, N = 8
24.0 - 25.0, N = 38
29.0 - 30.0, N = 38
33.5 - 33.9, N = 100+
39.0 - 40.0, N = 76
44.0 - 44.9, N = 100+
45.3 - 50.3, SCR% = 22, RQD% = 0
50.3 - 55.3, SCR% = 90, RQD% = 0
55.3 - 60.3, SCR% = 100, RQD% = 70
60.3 - 65.3, SCR% = 100, RQD% = 68
65.3 - 70.3, SCR% = 98, RQD% = 90
70.3 - 75.3, SCR% = 100, RQD% = 100
75.3 - 80.3, SCR% = 100, RQD% = 100

Projected Ahead From Sta. 121+24 20' Rt. of S.R. 51
4.5 - 6.6, Qu = 0.53 ksf
9.6 - 11.6, ST
12.1 - 13.1, N = 0
15.1 - 16.1, N = 6
20.1 - 21.1, N = 9
25.1 - 26.0, N = 100+
29.6 - 30.0, N = 100+
34.6 - 34.8, N = 100+
40.1 - 41.1, N = 64
43.5 - 43.5, N = 100+
43.5 - 45.3, SCR% = 100, RQD% = 100
45.8 - 50.8, SCR% = 34, RQD% = 0
50.8 - 55.8, SCR% = 88, RQD% = 0
55.8 - 60.8, SCR% = 100, RQD% = 70
60.8 - 65.8, SCR% = 100, RQD% = 100
65.8 - 70.8, SCR% = 100, RQD% = 98
70.8 - 75.8, SCR% = 100, RQD% = 96
75.8 - 80.8, SCR% = 100, RQD% = 100

Projected Back From Sta. 122+63 20' Lt. of S.R. 51
4.5 - 6.5, ST
10.0 - 11.0, N = 0
15.0 - 16.0, N = 1
20.0 - 21.0, N = 25
25.0 - 26.0, N = 38
30.0 - 31.0, N = 48
35.0 - 36.0, N = 68
40.0 - 40.9, N = 100+
45.0 - 45.8, N = 100+
50.0 - 51.0, N = 66
55.0 - 55.4, N = 100+
55.4 - 60.4, SCR% = 96, RQD% = 84
60.4 - 65.4, SCR% = 100, RQD% = 94
65.4 - 70.4, SCR% = 100, RQD% = 100
70.4 - 75.4, SCR% = 100, RQD% = 96
75.4 - 80.4, SCR% = 92, RQD% = 84

Projected Ahead From Sta. 122+63 20' Rt. of S.R. 51
4.6 - 6.6, Qu = 0.72 ksf
10.1 - 11.1, N = 1
15.1 - 16.1, N = 2
20.1 - 21.1, N = 20
25.1 - 26.1, N = 41
30.1 - 31.1, N = 100+
34.6 - 34.7, N = 100+
40.1 - 41.1, N = 68
45.1 - 45.9, N = 100+
45.9 - 50.9, SCR% = 34, RQD% = 0
50.9 - 55.9, SCR% = 74, RQD% = 0
55.9 - 60.9, SCR% = 100, RQD% = 90
60.9 - 65.9, SCR% = 100, RQD% = 100
65.9 - 70.9, SCR% = 100, RQD% = 100
70.9 - 75.9, SCR% = 100, RQD% = 92
75.9 - 80.9, SCR% = 84, RQD% = 80

Projected Back From Sta. 124+35 20' Lt. of S.R. 51
4.7 - 6.7, Qu = 0.45 ksf
9.7 - 11.7, Qu = 0.35 ksf
15.2 - 16.2, N = 23
19.7 - 20.0, N = 100+
25.2 - 26.2, N = 40
30.2 - 31.2, N = 43
35.2 - 35.7, N = 100+
40.2 - 41.2, N = 80
45.2 - 46.2, N = 62
50.2 - 51.2, N = 34
54.7 - 55.0, N = 100+
55.0 - 55.9, SCR% = 96, RQD% = 90
59.9 - 64.9, SCR% = 100, RQD% = 100
64.9 - 69.9, SCR% = 100, RQD% = 100
69.9 - 74.9, SCR% = 96, RQD% = 96
74.9 - 79.9, SCR% = 100, RQD% = 100

Projected Ahead From Sta. 124+35 20' Rt. of S.R. 51
4.5 - 6.5, Qu = 0.79 ksf
9.5 - 11.5, ST
12.0 - 13.0, N = 0
15.0 - 16.0, N = 18
19.5 - 19.6, N = 100+
25.0 - 26.0, N = 61
30.0 - 31.0, N = 41
35.0 - 36.0, N = 50
39.5 - 39.7, N = 100+
45.0 - 46.0, N = 58
50.0 - 51.0, N = 35
54.5 - 54.7, N = 100+
54.7 - 59.7, SCR% = 95, RQD% = 95
59.7 - 64.7, SCR% = 100, RQD% = 100
64.7 - 69.7, SCR% = 100, RQD% = 98
69.7 - 74.7, SCR% = 98, RQD% = 98
74.7 - 77.2, SCR% = 100, RQD% = 100

Projected Back From Sta. 125+74 20' Rt. of S.R. 51
4.6 - 6.6, Qu = 0.39 ksf
9.6 - 11.6, Qu = 0.48 ksf
15.1 - 16.1, N = 20
19.6 - 19.6, N = 100+
25.1 - 25.6, N = 100+
30.1 - 31.1, N = 50
35.1 - 36.0, N = 100+
40.1 - 41.0, N = 100+
45.1 - 46.1, N = 73
50.1 - 51.1, N = 35
54.6 - 54.9, N = 100+
54.9 - 59.9, SCR% = 96, RQD%=94
59.9 - 64.9, SCR% = 100, RQD%=100
64.9 - 69.9, SCR% = 100, RQD%=98
69.9 - 74.9, SCR% = 98, RQD%=98
74.9 - 79.9, SCR% = 98, RQD%=98

** Working Point @ C.L. Bent @ Profile Grade To Low Side Top Of Cap [2]

* Top Of Deck @ Profile Grade To Low Steel

For Soil Boring Legend, See Dwg. No. 55544

[2] See Rounding Detail on Dwg. No. 55593.

MVC = Minimum Vertical Clearance

Note: Unless noted otherwise, stations and elevations shown are taken at working point along C.L. Bridge. [2]

ELEVATION

STATE OF ARKANSAS
LARRY W. MILLER
REGISTERED PROFESSIONAL ENGINEER
No. 11339
8/29/14
LARRY W. MILLER
BRIDGE ENGINEER

SHEET 2 OF 3
LAYOUT OF BRIDGE OVER OUACHITA RIVER
OUACHITA RIVER STR. & APPRS. (ARKADELPHIA) (S)
CLARK COUNTY

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: LWM DATE: 10-11 FILENAME: b070240_L2.dgn
CHECKED BY: LWM DATE: 03-07-14 SCALE: 1" = 30'
DESIGNED BY: LWM DATE: 10-11

BRIDGE NO. 07316 DRAWING NO. 55543

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	53	172
				(1) 07316		Layout		55544

BORING LEGEND

A - Brown, medium dense, silty sand with gravel.
B - Brown & gray, medium stiff, lean clay.
C - Brown, very loose, silty sand with gravel.
D - Gray, very dense, silty sand.
E - Brown, very soft, lean clay with sand.
E2 - Brown & gray, very soft to medium stiff, lean clay.
F - Gray, very loose to very dense, silty sand.
G - Brown, light brown, very loose to loose, silty sand with gravel.
H - Gray, loose to very loose, silty sand.
I - Gray, very dense, silty sand.
J - Gray, very hard, sandy lean clay.
K - Brown, stiff, lean clay.
L - Brown and gray, very loose to loose, silty sand with gravel.
M - Gray, very dense, silty sand.
N - Gray, very hard, sandy lean clay.
N2 - No recovery, interpreted as hard clay.
O - Brown & gray, medium dense, well-graded gravel with sand.
P - Gray, very dense, silty sand.
Q - River Gravel (Not Sampled).
Q2 - Gray, very dense, silty sand.
R - Gray, very hard, fat clay with sand.
S - River Gravel (Not Sampled).
S2 - Gray, very dense, silty sand.
T - Gray, very hard, fat clay with sand.
U - River Gravel (Not Sampled).
U2 - Gray, very dense, silty sand.
V - Brown, loose, silty sand.
W - Dark gray, gray, brown & tan, medium dense to very dense, well-graded sand with gravel.
X - Gray, very dense, silty sand.
Y - Gray, hard, sandy lean clay.
Z - Brown, dense, silty sand.

AA - Brown, loose to dense, well-graded sand with gravel.
AB - Gray, very dense, silty sand.
AC - Dark gray & gray, hard to very hard, sandy lean clay.
AD - Brown, very loose, silty sand.
AE - Brown & gray, soft, silty clay with sand.
AF - Gray, very loose, silty sand.
AG - Gray & brown, medium dense, well-graded sand with gravel.
AH - Gray, dense to very dense, silty sand.
AI - Gray, hard to very hard, sandy lean clay.
AJ - Brown, very loose, silty sand.
AK - Brown, very loose, silty sand.
AL - Brown, gray & white, very loose to medium dense, well-graded sand with gravel.
AM - Gray, medium dense, silty sand.
AN - Gray & white, very dense, poorly graded gravel.
AO - Brown, loose to medium dense, silty sand.
AP - Gray, soft, silty clay with sand.
AQ - Gray, loose, well-graded sand with gravel.
AR - Gray, dense, silty sand.
AS - Gray, very dense, silty sand with gravel.
AT - Gray, very dense, silty sand.
AU - Brown & gray, loose, silty sand.
AV - Dark gray, medium dense, well-graded sand with gravel.
AW - Gray, very dense, silty sand.
AX - Gray, dense, silty sand.
AY - Light gray, very dense, poorly graded gravel with silt and sand.
AZ - Gray, loose, poorly graded gravel with silt and sand.

BA - Gray, very dense, silty sand.
BB - Gray, very hard, sandy lean clay.
BC - Brown, very soft, lean clay with sand.
BD - Brown & gray, very soft to soft, silty clay with sand.
BE - Gray, medium dense, well-graded sand with gravel.
BF - Gray, dense, silty sand.
BG - Gray, very dense, silty sand.
BH - Gray, very dense, poorly graded gravel with silt and sand.
BI - Gray, very dense, silty sand.
BJ - Brown & gray, very soft to medium stiff, silty clay with sand.
BK - Brown & gray, loose, well-graded sand with gravel.
BL - Gray, very dense, silty sand.
BM - Light gray, very dense, silty sand with gravel.
BN - Gray, very dense, silty sand.
BO - Brown, very loose, poorly graded sand with silt.
BP - Gray & brown, very soft to very stiff, silty clay with sand.
BQ - Gray, dense to very dense, silty sand.
BR - Gray, very hard, sandy lean clay.
BS - Brown, very soft, lean clay with sand.
BT - Gray, very loose, silty sand.
BU - Gray, medium dense, well-graded sand with gravel.
BV - Dark gray & gray, dense to very dense, silty sand.
BW - Brown, very stiff, lean clay with sand.
BX - Gray, very stiff, silty clay with sand.
BY - Gray, medium dense, well-graded sand with gravel.
BZ - Gray, very dense, silty sand.

CA - Gray, dense to very dense, silty sand.
CB - Gray, hard to very hard, sandy lean clay.
CC - Brown & gray, very soft, silty clay with sand.
CD - Gray, medium dense to very dense, well-graded sand with gravel.
CE - Gray, dense to very dense, silty sand.
CF - Gray, hard to very hard, sandy lean clay.
CG - Gray, hard, lean clay.
CH - Gray, dense, poorly graded sand with silt.
CI - Brown, dense, poorly graded gravel with sand.
CJ - Gray, dense to very dense, silty sand.
CK - Gray, hard to very hard, sandy lean clay.
CL - Gray, very stiff, lean clay.
CM - Brown, medium dense, poorly graded gravel with sand.
CN - Gray, very dense, silty sand.
CO - Gray, hard to very hard, sandy lean clay.
CP - Sand: Light gray, light brown, clear, increasing silt/clay with depth.
CQ - Clay: Black, dark brown, silty to fine sand.
CR - Sand: Light brown to gray, fine grain.
CS - Sandstone: Gray, light gray, light brown, soft to medium hard.
CT - Claystone: Dark gray, soft, very fine sandy.
CU - Sand: Gray, light brown, clear, loose grains to very soft, fine grain.
CV - Clay: Black, dark brown, soft, high plasticity.
CW - Sandstone: Gray, gray-green, light brown, soft to medium hard, fine grain.
CX - Claystone: Gray, gray-green, dark gray, soft, very fine to fine sandy.
CY - No Recovery: Interpreted as very dense, silty sand.
CZ - Sandstone: Olive gray, dark green, moderately severe to very severly weathered.

DA - Sandstone: Light gray, gray-green, olive green, moderate to severely weathered.
DB - Clay: Dark gray-black, dark green, medium hard, high plasticity.
DC - Sandstone: Light gray, gray-green, moderate to severly weathered.
DD - Clay: Dark gray-green to black-green, soft, high plasticity.
DE - Sandstone: Light gray, gray-green, olive green, moderately weathered.
DF - Clay: Dark gray-green to black-green, hard, high plasticity.
DF2 - Claystone: Dk gray, soft, v. f. sandy w/v.f. to f. grain sand laminae.
DG - Sandstone: Light gray, moderate to severely weathered.
DH - Sandstone: Gray-brown, soft to medium hard, fine grain.
DI - Claystone: Dark gray to black, soft, very fine sandy grain.
DJ - Sandstone: Gray-brown, soft to medium hard, fine grain.
DK - Sandstone: Gray-brown, soft to medium hard, fine grain.
DL - Claystone: Dark gray, dark brown, soft, very fine to fine grain sand and silt.
DM - Sandstone: Gray-brown, soft to medium hard, fine grain.
DN - Sandstone: Gray-light brown, soft to medium hard, fine grain.
DO - Claystone: Gray, gray-green, soft, very fine sandy to silty.
DP - Limestone: Gray, gray-brown, hard, fine grain quartz sand.
DQ - Sand: Light gray, light brown, clear, fine grain quartz.
DR - Clay: Black, dark brown, dark gray, high plasticity, fine grain.
DS - Sandstone: Light gray, gray-brown, soft to medium hard, fine grain.
DT - Claystone: Dark gray, dark gray-green, soft, very fine sandy to silty.
DU - Sand: Light brown, light gray, clear, fine grain, high plasticity.
DV - Clay: Black, dark brown-dark gray, soft, high plasticity.
DW - Sandstone: Gray-brown, soft to medium hard, fine grain.
DX - Claystone: Dark gray to black, soft, silty to very sandy.
DY - Limestone: Light gray-light brown, moderately hard, fine to coarse grain.
DZ - Limestone: Gray, light gray, light brown, fine grain.

EA - Sandstone: Gray-brown, soft to medium hard, fine grain.
EB - Claystone: Dark gray to black, soft, very fine sandy to silty medium grain.
EC - Clay: Dark brown to black, soft, high plasticity, fine to coarse sandy.
ED - Sandstone: Gray-brown, soft to medium hard, fine grain.
EE - Limestone: Gray, light brown, hard, fine grain quartz.
EF - Sand: Brown, dark brown, gray, very soft to soft, fine grain.
EG - Clay: Black, dark brown, very soft to soft, high plasticity.
EH - Sandstone: Gray, light gray light brown, soft to medium hard, fine grain.
EI - Sandstone: Gray-brown, soft to medium hard, fine grain.
EJ - Claystone: Dark gray to black, soft, high plasticity.
EK - Sandstone: Gray-brown, soft to medium hard, fine grain.
EL - Sand: Light gray, light brown, clear, fine grain.
EM - Clay: Black, dark brown, high plasticity, very fine to fine grain.
EN - Sandstone: Gray-light brown, soft to medium hard, fine grain.
EO - Sandstone: Gray-brown, soft to medium hard, fine grain.
EP - Claystone: Gray-blue-brown, soft, very fine grain.
EQ - Sandstone: Gray-light brown, soft to medium hard, fine grain.
ER - Sandstone: Gray-brown, soft to medium hard, fine grain.
ES - Sandstone: Gray-brown, soft, very fine to fine grain.
ET - Sandstone: Gray-brown, light gray, gray-green, soft to medium hard, fine grain.
EU - Claystone: Gray-green-brown, soft, very fine grain.

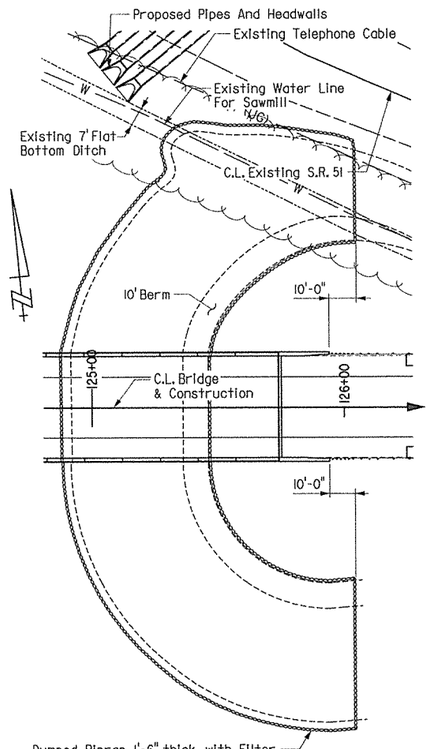
HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE (per FEMA FIS)	*NATURAL WATER SURFACE ELEVATION	**WATER SURFACE ELEV. WITH BACKWATER
	YEARS	CFS	FEET	FEET
Design	50	115,000	187.5	187.5
Base	100	140,000	188.8	188.9
Extreme	500	200,000	191.8	192.1
Overtopping	>500	--	--	--

*Unconstricted water surface including existing structue but without proposed structure or roadway approaches.

**Includes backwater from Bridge No. 01412.

Drainage area = 2,311 square miles. (per FEMA FIS)
Historical H.W. Elev. = 190.6 ft. (flood of 1945)



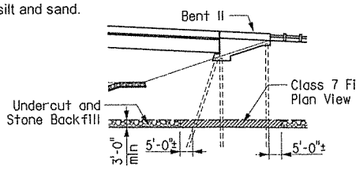
PLAN OF RIPRAP AT BENT NO. II

Scale: 1" = 30'-0"

PILE DRIVING PARAMETERS

BENT	MINIMUM ULTIMATE BEARING CAPACITY (TONS)	MINIMUM PENETRATION (FEET)
1	200	30 *
2	140	20**
5	200	20**
6	140	25**
7	140	15**
8	140	20**
9	240	15**
10	240	15**
11	100	20***

*Below bottom of leveling pad
**Below bottom of footing
***Below existing ground



Class 7 (Base Course), in accordance with Subsection 303.02 of the Standard Specifications, will replace the Stone Backfill (See SP Job 070240 "Excavation and Embankment"). Class 7, as shown in this Detail, will be paid for as Stone Backfill in accordance with SP Job 070240 "Excavation and Embankment".

At the Contractor's option, preboring may be used to facilitate pile installation thru the aggregate base course (Class 7) material. Preboring will not be paid for separately but shall be included in the item "Steel Piling".

DETAIL A

No Scale

DETAIL DRAWINGS:	DRAWING NO.
End Bents	55550-55553 & 55572-55574
Intermediate Bents	55554-55571
690'-0" Cont. Comp. Plate Girder Unit	55575-55583 & 55593-55595
487'-0" Cont. Comp. Plate Girder Unit	55584-55587 & 55593-55595
450'-0" Cont. Comp. Plate Girder Unit	55588-55595
Chain Link Fence	55596
Reflective Panels	55597
Expansion Joints	55598-55599
Elastomeric Bearings	55600
Type Special 1 Approach Gutters	55601
Type Special 2 Approach Gutters	55602
Steel Piling	55020

GENERAL NOTES

BENCH MARK: No. 907. N=1843360.08, E=995571.96, Elev. 195.93, Sta. 109+72.68, Offset 136.82' Left.

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition) with applicable supplemental specifications and special provisions. Unless otherwise noted in the plans, section and subsection numbers refer to the Standard Construction Specifications.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications (2012, 6th Edition) with Interim specifications.

LIVE LOADING: HL93

SEISMIC ZONE: 1 SI = 0.064, Fv = 2.40

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (Superstructure)	f'c = 4,000 psi
Class S Concrete (Substructure, Drilled Shaft)	f'c = 3,500 psi
Reinforcing Steel (Grade 60, AASHTO M 31 or M 322, Type A)	fy = 60,000 psi
Structural Steel (AASHTO M 270, Gr. 50W)	Fy = 50,000 psi
Structural Steel (AASHTO M 270, Gr. 36)	Fy = 36,000 psi

BORING LOGS: Boring Logs may be obtained from the Programs and Contracts Division.

PREBORING: Preboring, water jetting or other methods as approved by the Engineer may be needed to obtain minimum penetration requirement for piles. Any cost associated with this work will be considered subsidiary to the pay item 805 "STEEL PILING (HP12X53)".

DRIVING SYSTEM: The driving system approval and the ultimate bearing capacity determination for piling shall be based on the requirements of Subsection 805.09(b) "Method B - Wave Equation Analysis (WEAP)" of the Standard Specifications. It is estimated that the minimum required rated energy of the hammer to obtain the minimum ultimate bearing capacity will be 35,000 foot pounds per blow.

STEEL PILING: All piling shall be HP12x53 (Grade 50) and shall be driven with an approved air, steam, or diesel hammer. For minimum ultimate bearing capacities and minimum penetrations, see table of Pile Driving Parameters. Piles in Bent 1 shall be driven after excavation to bottom of leveling pad is completed and prior to backfilling. Piles in Bent 11 shall be driven after embankment to bottom of cap is in place for a minimum of 45 days to allow for settlement of foundation soils. Lengths shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with the Standard Specifications. On all piles the Contractor shall use approved steel H-Pile driving points.

PILE FOOTINGS: The top of footings for Bents 2 and 5-10 shall be set a minimum of 4'-0" below finished ground. Foundations for footings shall be prepared in accordance with Subsection 801.04 and backfilled in accordance with Subsection 801.08.

DRILLED SHAFTS: Foundations for Bents 3 and 4 shall consist of Drilled Shafts. All drilled shafts shall be founded to the minimum rock penetrations and tip elevations as shown on the plans. No adjustments in Plan Tip Elevation shall be made without prior approval from the Engineer. Methods of construction of the drilled shafts shall be in accordance with SP Job 070240 "Drilled Shaft Foundations". Casing shall not extend below top of rock. The Contractor must obtain approval from the Engineer for any deviation from this requirement.

CROSSHOLE SONIC LOGGING: Nondestructive testing shall be performed on each drilled shaft in accordance with SP Job 070240 "Nondestructive Testing of Drilled Shafts".

BRIDGE DECK: The concrete bridge deck shall be given a tine finish as specified for final finishing in Subsection 802.19 for Class S Tined Bridge Roadway Surface Finish.

CLASS I PROTECTIVE SURFACE TREATMENT: Class I Protective Surface Treatment shall be applied to the roadway surface and to the roadway face and top of the concrete parapet rail.

EXISTING BRIDGE: The existing bridge, Bridge No. 01412, is 25' wide and 504' long. It is located approximately 270' upstream of the proposed new bridge. The existing bridge will remain in place.

SHORING: Shoring may be required at Bent 2 to protect the sanitary sewer line. See Special Provision Job No. 070240 "Shoring".

MAINTENANCE OF TRAFFIC: See Roadway Drawings.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11339
LARRY W. MILLER
8/29/14

BRIDGE ENGINEER

SHEET 3 OF 3
LAYOUT OF BRIDGE OVER OUACHITA RIVER
OUACHITA RIVER STR. & APPRS. (ARKADELPHIA) (S)
CLARK COUNTY

ROUTE 51 SEC. 2

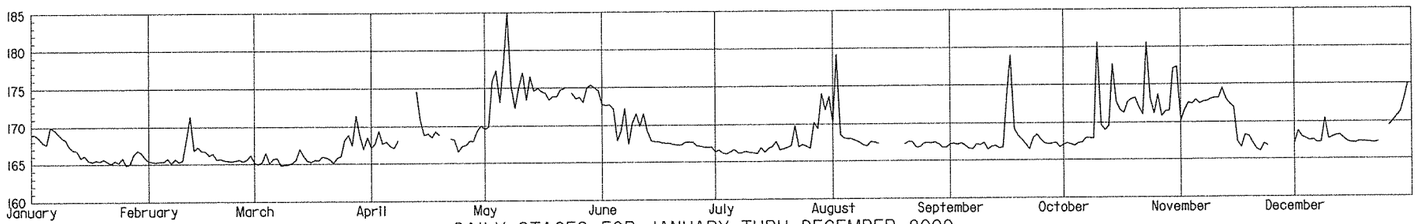
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

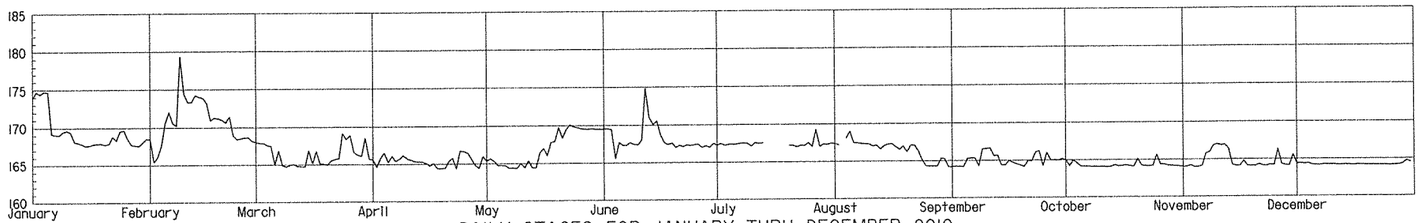
DRAWN BY: LWM DATE: 10-11
CHECKED BY: LWM DATE: 03-07-14
DESIGNED BY: LWM DATE: 10-11
FILENAME: b070240 L3.dgn
SCALE: As Shown

BRIDGE NO. 07316 DRAWING NO. 55544

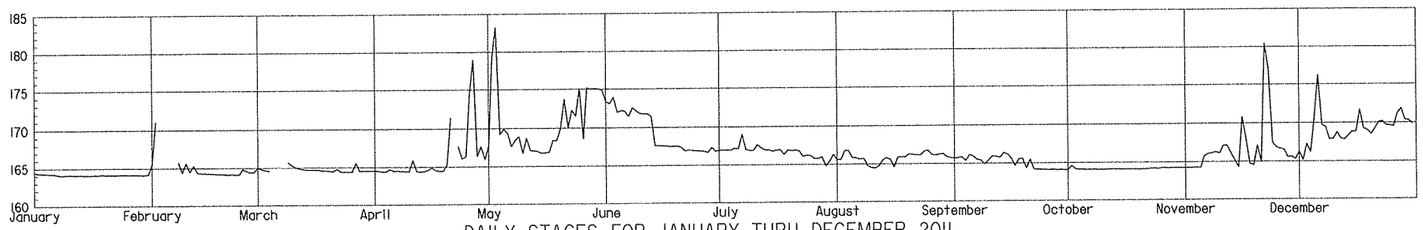
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	54	172
				(1) 07316		HYDROGRAPH		55545



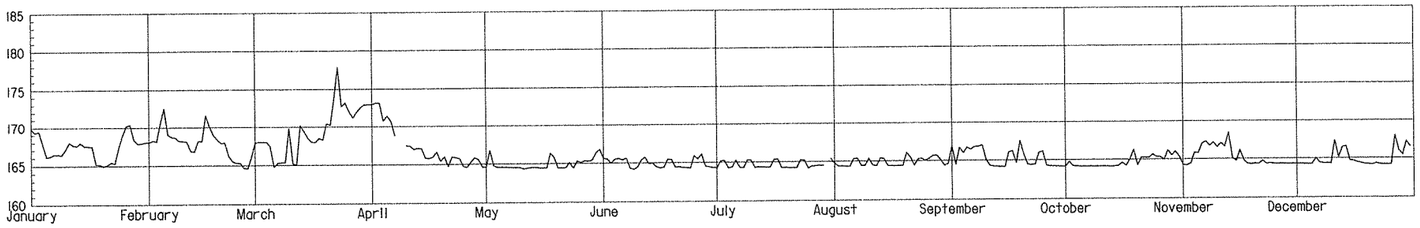
DAILY STAGES FOR JANUARY THRU DECEMBER 2009



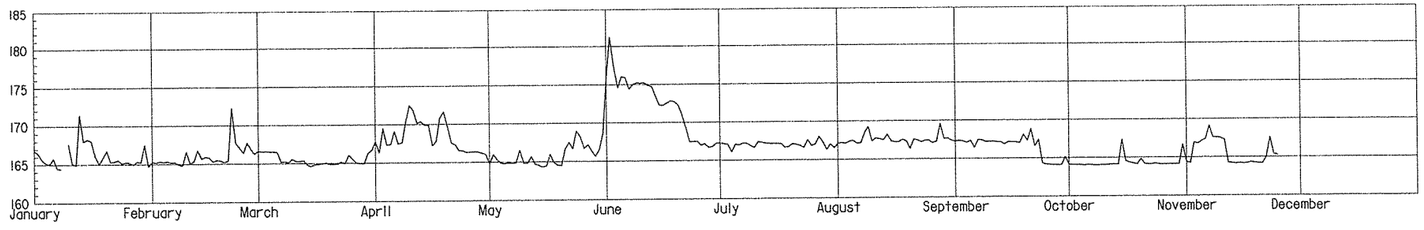
DAILY STAGES FOR JANUARY THRU DECEMBER 2010



DAILY STAGES FOR JANUARY THRU DECEMBER 2011



DAILY STAGES FOR JANUARY THRU DECEMBER 2012



DAILY STAGES FOR JANUARY THRU NOVEMBER 2013

This Stage Hydrograph was obtained from the U.S. Army Corps Of Engineers and was plotted by ICA Engineering. Gaps in hydrograph signify missing data.

This hydrograph is provided for information only.

Location: Latitude 34°07'16", Longitude 93°02'47". State Route 51 bridge located at River Mile 398.9. of Ouachita River.

STATE OF ARKANSAS
Larry W. Miller
REGISTERED PROFESSIONAL ENGINEER
No. 13339
8/29/14
LARRY W. MILLER

BRIDGE ENGINEER

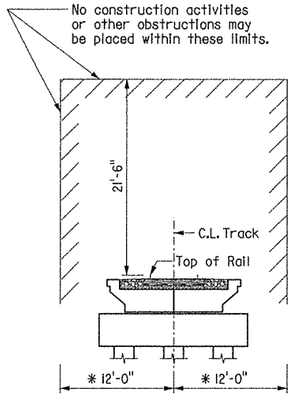
HYDROGRAPH - OUACHITA RIVER
OUACHITA RIVER STR. & APPRS. (ARKADELPHIA) (S)
CLARK COUNTY
ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: LWM DATE: 11-13 FILENAME: b070240_hyd.dgn
CHECKED BY: LWM DATE: 03-07-14 SCALE: None
DESIGNED BY: LWM DATE: 11-13

BRIDGE NO. 07316 DRAWING NO. 55545

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	55	172
				(1) 07316		EXHIBIT A		55546

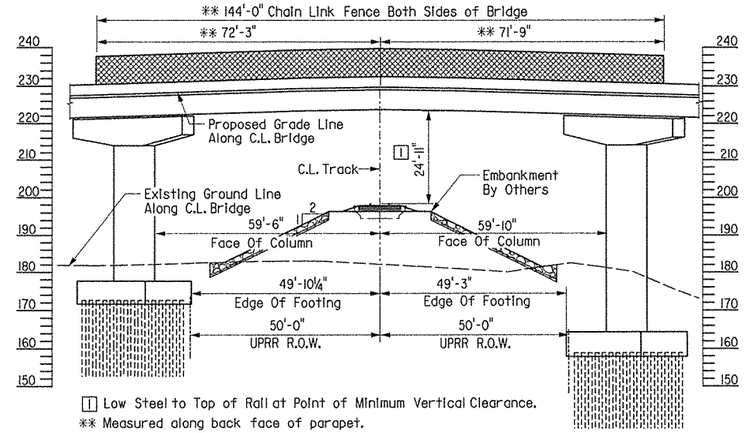


Note: No excavation permitted within 12' of C.L. Track.

* Measured normal to C.L. Track.

MINIMUM CONSTRUCTION CLEARANCES

1/8" = 1'-0"



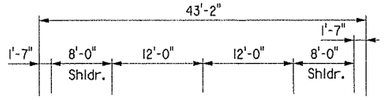
[1] Low Steel to Top of Rail at Point of Minimum Vertical Clearance.

** Measured along back face of parapet.

BENT NO. (6) (7)

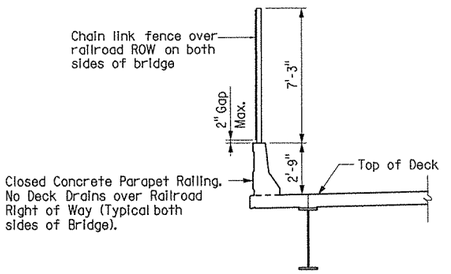
SECTION NORMAL TO TRACK

Scale: 1" = 20'-0"



TYPICAL SECTION THRU BRIDGE

Scale: 1" = 20'-0"



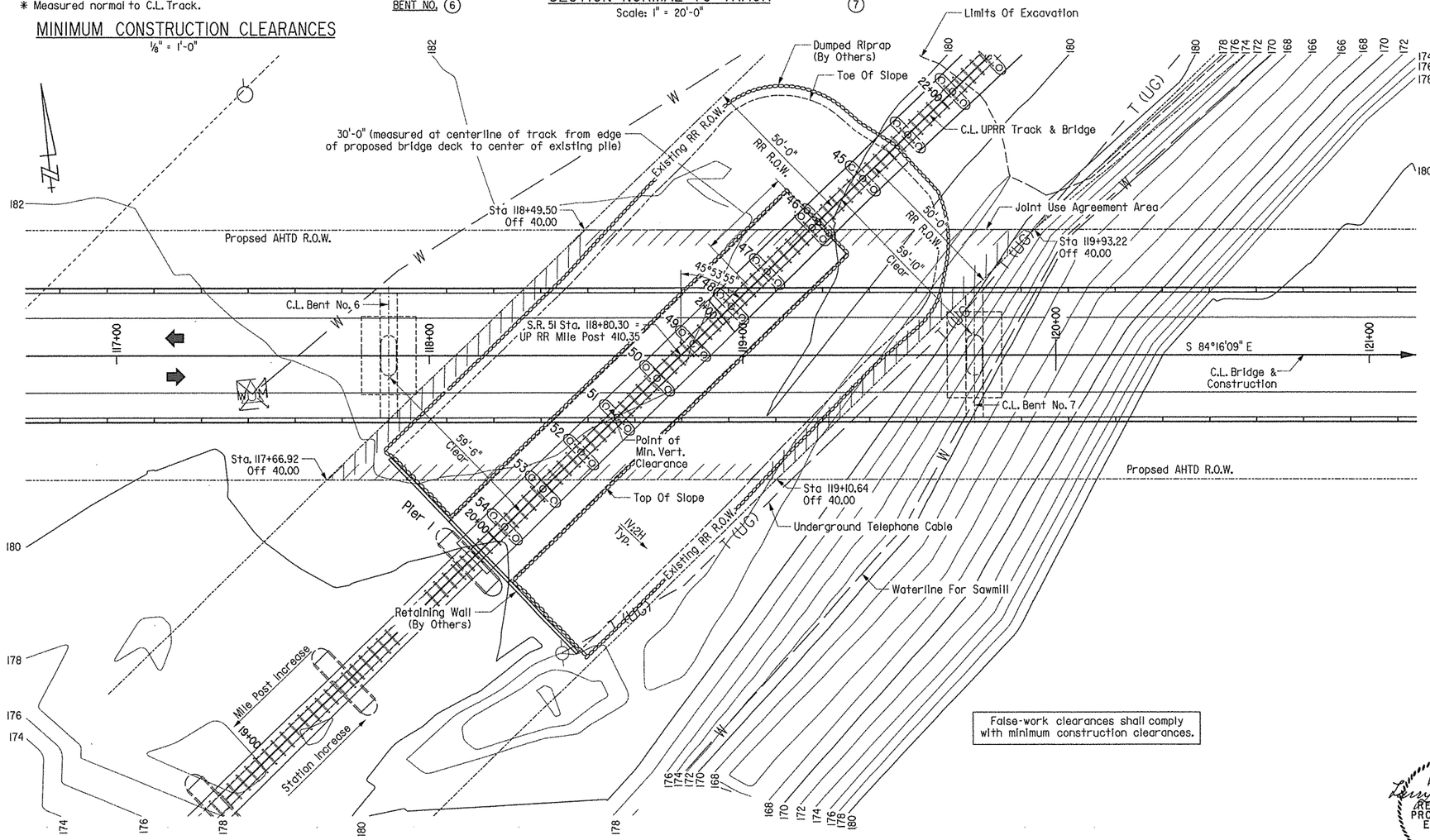
TYPICAL SECTION THRU PARAPET

N.T.S.

Note: A 7'-0" chain link fence is required as shown on both sides. The fence is to be mounted on top of the concrete parapet rail. For details of fence, see Dwg. No. 55596.

GENERAL NOTES

1. The proposed bridge structure will not significantly change the quantity and/or characteristics of the flow in the Railroad's ditches and/or drainage structure.
2. The State shall not plow ice, snow or sleet over the sides of the structure. In consideration of this practice, the Carrier waives its request for the State to attach splash boards to sides of the structure. This statement is in the State-Railroad Agreement.
3. All permanent clearances shall be verified before project closing.
4. Erection over the Railroad's right-of-way shall be designed to cause no interruption to the Railroad's operation. Erection over the Railroad's tracks shall be developed such that it enables the track(s) to remain open to traffic per the Railroad's requirements.
5. The Contractor must submit a proposed method of erosion and sediment control and have the method approved by the Railroad prior to beginning any grading on the project site.
6. Railroad requirements do not allow work within 50 feet of track centerline when a train passes the work site and all personnel must clear the area within 25 feet of the track centerline and secure equipment when trains are present.
7. Construction shall comply with the requirements of Job 070240 Special Provision "Insurance, Construction, and Flagging Requirements on Railroad Property (UPRR)". Any shoring shall comply with the Railroad's requirements.
8. Railroad review and approval of Shoring, Erection, and Falsework is required. Allow a minimum of four weeks for the review and approval of each submittal.
9. For Railroad coordination, refer to the Railroad Minimum Requirements of Job 070240 Special Provision "Insurance, Construction, and Flagging Requirements on Railroad Property (UPRR)".
10. All known utilities in the Railroad right-of-way are denoted on the plan view.



False-work clearances shall comply with minimum construction clearances.

PLAN

Scale: 1" = 20'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11339
LARRY W. MILLER
8/29/14

BRIDGE ENGINEER

Latitude 34.1207, Longitude -93.0439
Mile Post 410.35 Little Rock Subdivision

SHEET 1 OF 2
EXHIBIT A
LAYOUT OF BRIDGE OVER
OUACHITA RIVER
OUACHITA RIVER STR. &
APPRS. (ARKADELPHIA) (S)
CLARK COUNTY

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION

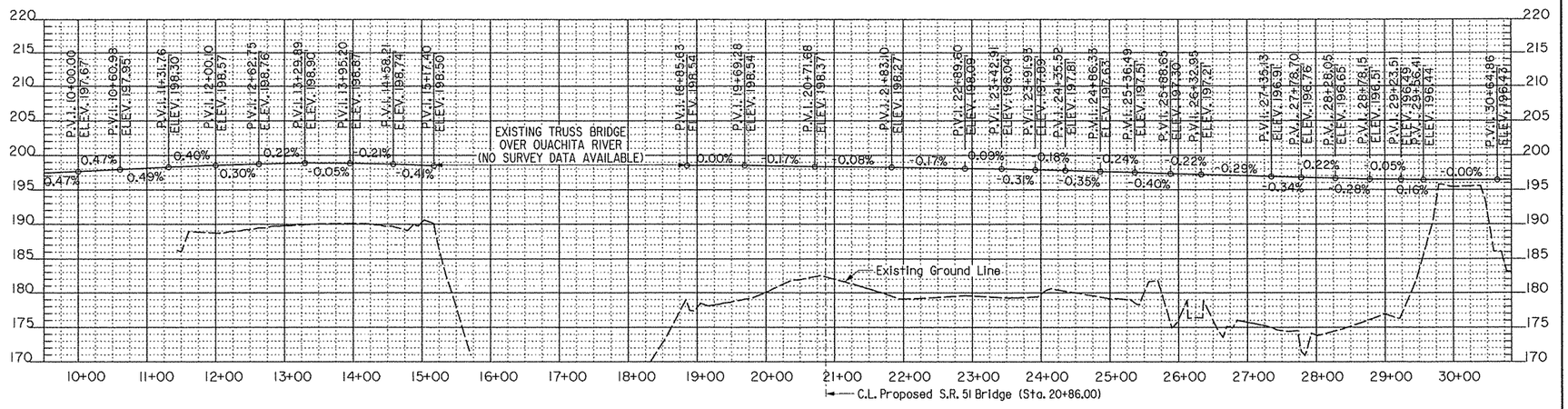
LITTLE ROCK, ARK.

DRAWN BY: LWM DATE: 10-11
CHECKED BY: LWM DATE: 03-07-14
DESIGNED BY: LWM DATE: 10-11
FILENAME: b070240_X1.dgn
SCALE: As Shown

BRIDGE NO. 07316 DRAWING NO. 55546

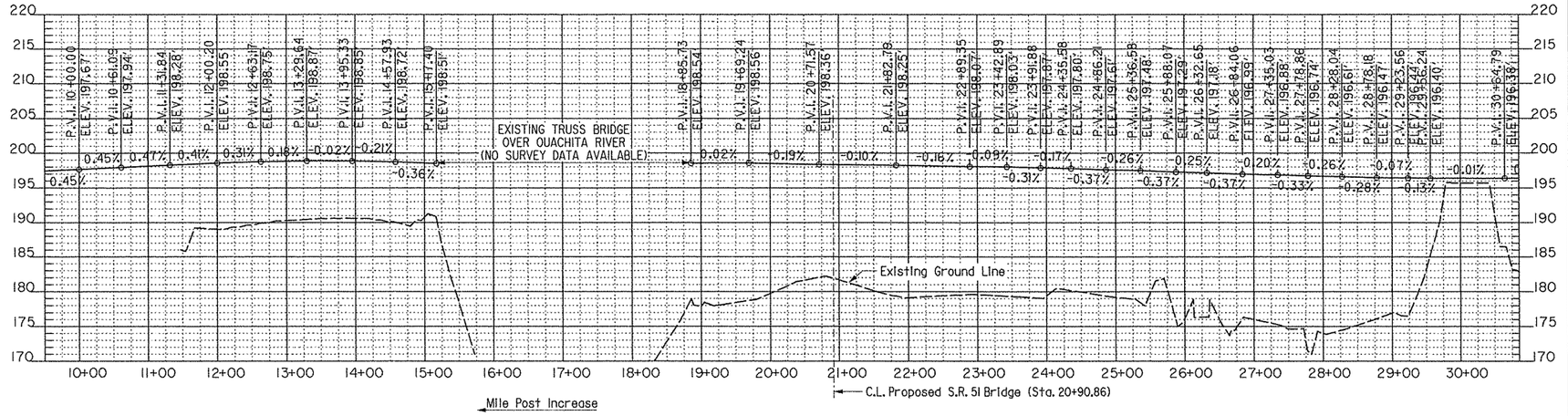
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	56	172
				(1) 07316		EXHIBIT A		55547

The elevations of the existing top-of-rail profile shall be verified by the Contractor prior to beginning construction. Any discrepancies that will decrease the vertical clearance shown in the Elevation Section shall be brought to the attention of the railroad prior to construction.



PROFILE ALONG TOP OF NORTH RAIL

Note: Stations decrease with milespost increase.



PROFILE ALONG TOP OF SOUTH RAIL

Note: Stations decrease with milespost increase.

STATE OF ARKANSAS
LARRY W. MILLER
REGISTERED PROFESSIONAL ENGINEER
No. 13939
3-27-14
BRIDGE ENGINEER

SHEET 2 OF 2
EXHIBIT A
LAYOUT OF BRIDGE OVER
OUACHITA RIVER
OUACHITA RIVER STR. &
APPRS. (ARKADELPHIA) (S)
CLARK COUNTY

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION

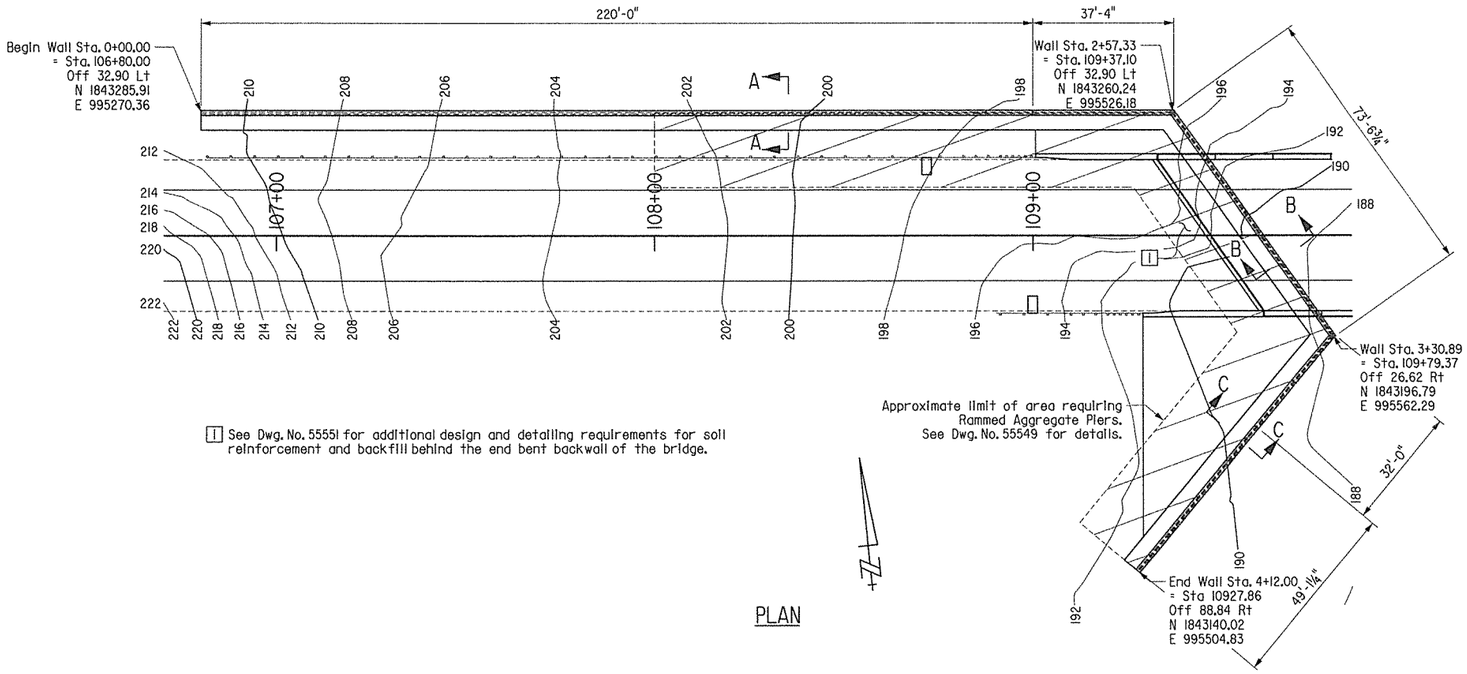
LITTLE ROCK, ARK.

DRAWN BY: LWM DATE: 10-11 FILENAME: b070240_X2.dgn
CHECKED BY: LWM DATE: 03-07-14 SCALE: 1" = 100'
DESIGNED BY: LWM DATE: 10-11

BRIDGE NO. 07316 DRAWING NO. 55547

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		070240	57	172
(1) 07316		RETAINING WALL		55548



[I] See Dwg. No. 55551 for additional design and detailing requirements for soil reinforcement and backfill behind the end bent backwall of the bridge.

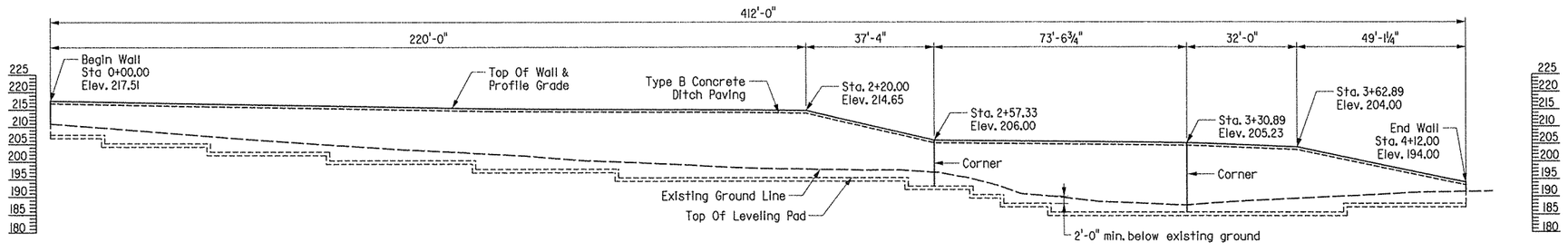
PLAN

Control point stations and offsets in PLAN VIEW are measured to the face of retaining wall and are perpendicular to C.L. Construction.

For wall sections and details, see Dwg. No. 55549.

WALL STATION	TOP OF WALL ELEV.	EXISTING GROUND ELEV.
0+00.00	217.51	210.93
0+20.00	217.10	209.36
0+45.00	216.65	207.37
0+70.00	216.26	205.54
0+77.56	216.16	205.03
0+95.00	215.81	203.88
1+20.00	215.36	202.58
1+27.56	215.23	202.13
1+45.00	215.10	201.03
1+70.00	214.97	199.71
1+95.00	214.90	198.47
2+20.00	214.65	197.82
2+45.00	208.86	197.55
2+57.33	206.00	196.90
2+70.00	205.87	194.63
2+95.00	205.61	189.67
3+20.00	205.34	187.95
3+30.89	205.23	187.57
3+45.00	204.69	188.53
3+62.89	204.00	189.40
3+70.00	202.55	189.73
3+95.00	197.46	190.96
4+12.00	194.00	191.37

Stationing is along wall profile grade line.
See section for location.



ELEVATION

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11339
LARRY W. MILLER
5/29/14
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF RETAINING WALL
OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: LWM DATE: 06-13 FILENAME: b070240_W1.dgn
CHECKED BY: LWM DATE: 03-07-14 SCALE: 1" = 20'-0"
DESIGNED BY: LWM DATE: 06-13

BRIDGE NO. 07316 DRAWING NO. 55548

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	58	172
				(1) 07316		RETAINING WALL		55549

[1] Top of leveling pad shall be a minimum of 2'-0" below finished grade or existing ground, whichever is lower.

[2] ½" thick preformed joint filler AASHTO M153 Type I per Section 501.02(h)(1) with ½" x 1" Type 3 or 4 joint sealer per Section 501.02(h)(2). Backer rod is not required.

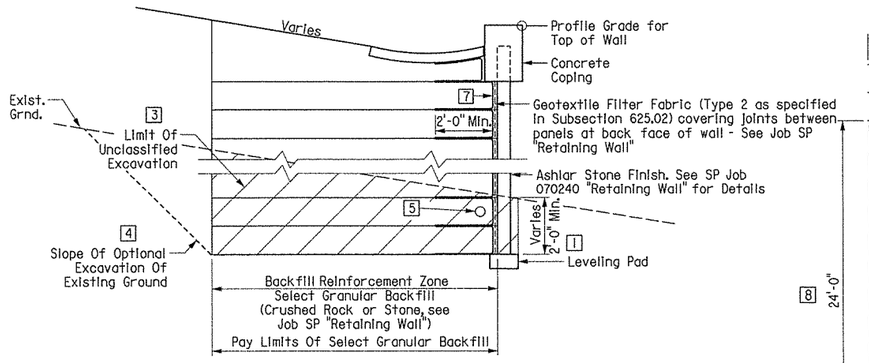
[3] Excavation required for area of Reinforcing Zone will be paid for under the pay item 210, "Unclassified Excavation". See SP Job 070240 "Retaining Wall" for additional information.

[4] Contractor has the option of using a cut slope or shoring to maintain stability of cut. Any excavation and replacement backfill beyond the limits of Reinforcing Zone or any shoring used will not be paid for directly but will be considered subsidiary to various pay items. See SP Job 070240 "Retaining Wall".

[5] 4" Pipe Underdrain for full length of wall in accordance with Section 611 and Std. Dwg. PU-1. This work and material are to be considered subsidiary to the item "Retaining Wall" and will not be paid for directly.

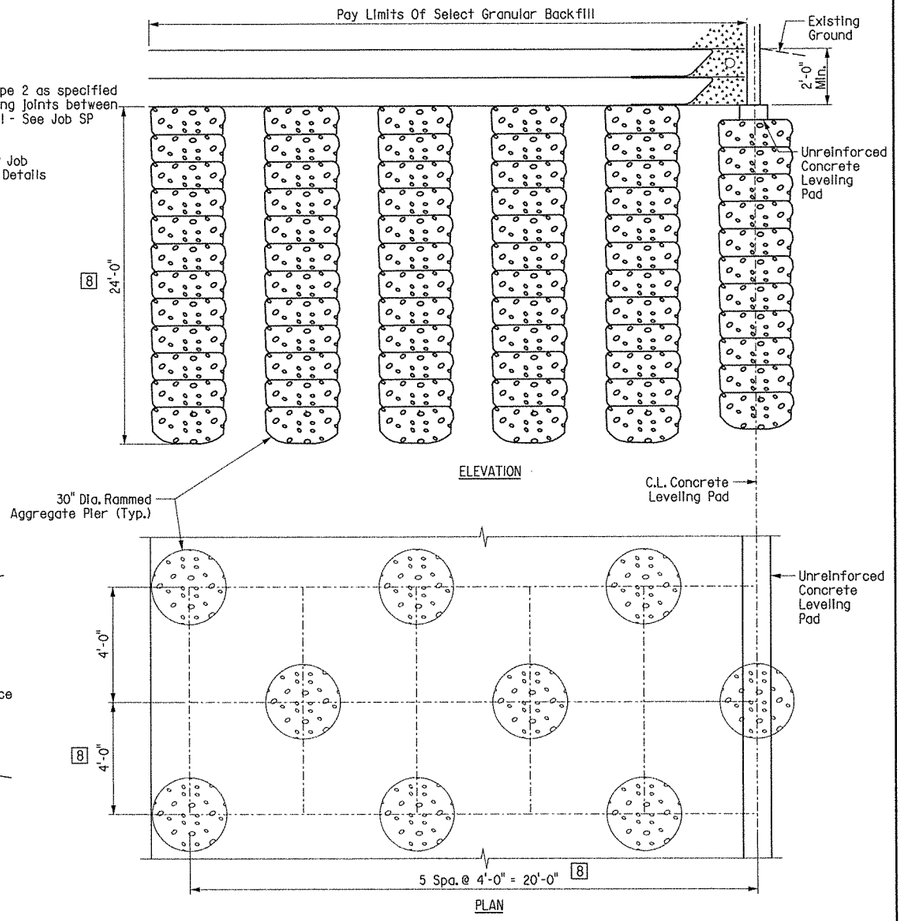
[6] Drainage Fill material (Class 3 Mineral Aggregate as specified in subsection 403.01). To be paid for as Select Granular Backfill.

[7] Geotextile Filter Fabric (Type 2 as specified in Subsection 625.02)



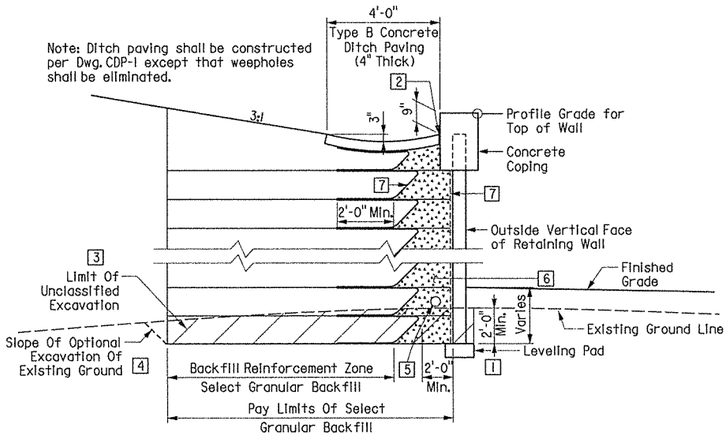
Section C-C is shown. Section A-A is similar.

BACKFILL METHOD B
Scale: ⅜" = 1'-0"



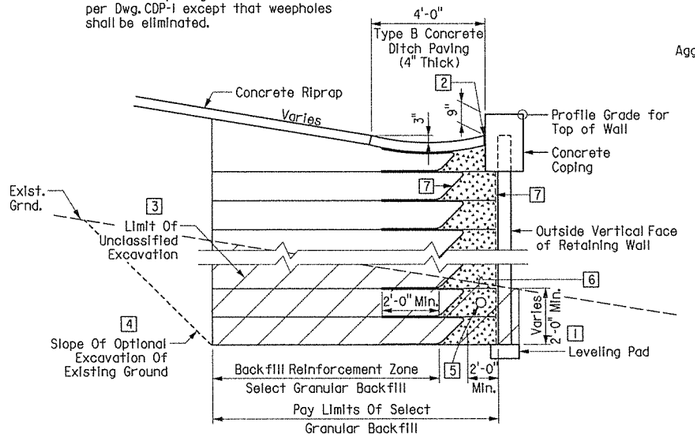
RAMMED AGGREGATE PIERS
No Scale

Note: Ditch paving shall be constructed per Dwg. CDP-1 except that weepholes shall be eliminated.

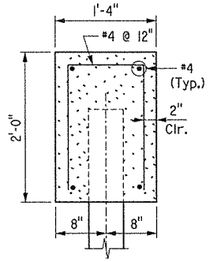


SECTION A-A
(BACKFILL METHOD A)
Scale: ⅜" = 1'-0"

Note: Ditch paving shall be constructed per Dwg. CDP-1 except that weepholes shall be eliminated.



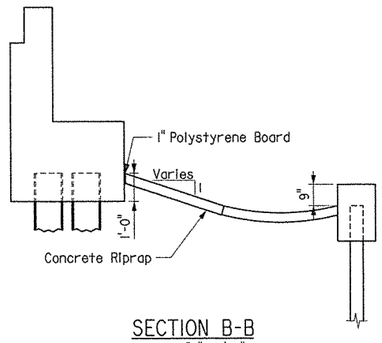
SECTION C-C
(BACKFILL METHOD A)
Scale: ⅜" = 1'-0"



COPING DETAIL
Scale: 1" = 1'-0"

Notes:
Reinforcing steel and Class S(AE) Concrete for coping shall not be paid for directly, but will be considered subsidiary to the item "Retaining Wall".

Precast coping may be substituted for cast-in-place coping shown.



SECTION B-B
Scale: ⅜" = 1'-0"

[8] Dimensions shown are approximate and for estimating purposes only. Actual dimensions to be determined by the designer.

Rammed aggregate pier details are provided for general information and estimating purposes only. Actual dimensions are to be determined by the designer. Rammed aggregate pier design and construction shall meet the requirements of Special Provision Job 070240 "Rammed Aggregate Piers". To avoid conflict with bridge structural elements, the location of proposed piling in Bent 1 shall be considered in the design and placement of rammed aggregate piers.

For quantities, see Roadway drawings.

STATE OF ARKANSAS
Larry W. Miller
REGISTERED PROFESSIONAL ENGINEER
No. 11339
5/27/14
LARRY W. MILLER
BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF RETAINING WALL
OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: LWM DATE: 06-13 FILENAME: b070240_W2.dgn
CHECKED BY: LWM DATE: 03-07-14 SCALE: As Shown
DESIGNED BY: LWM DATE: 06-13

BRIDGE NO. 07316 DRAWING NO. 55549

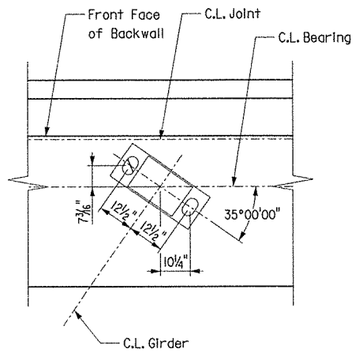
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	59	172
				(1) 07316		END BENTS		55550

For VIEW A-A, VIEW B-B, VIEW C-C and VIEW D-D, see Dwg. No. 55552

For additional information, see LAYOUT on Dwg. No. 55542-55544.

For Details of Wing and Rail, see Dwg. No. 55552 & 55553.

For Bar List, see Dwg. No. 55574.

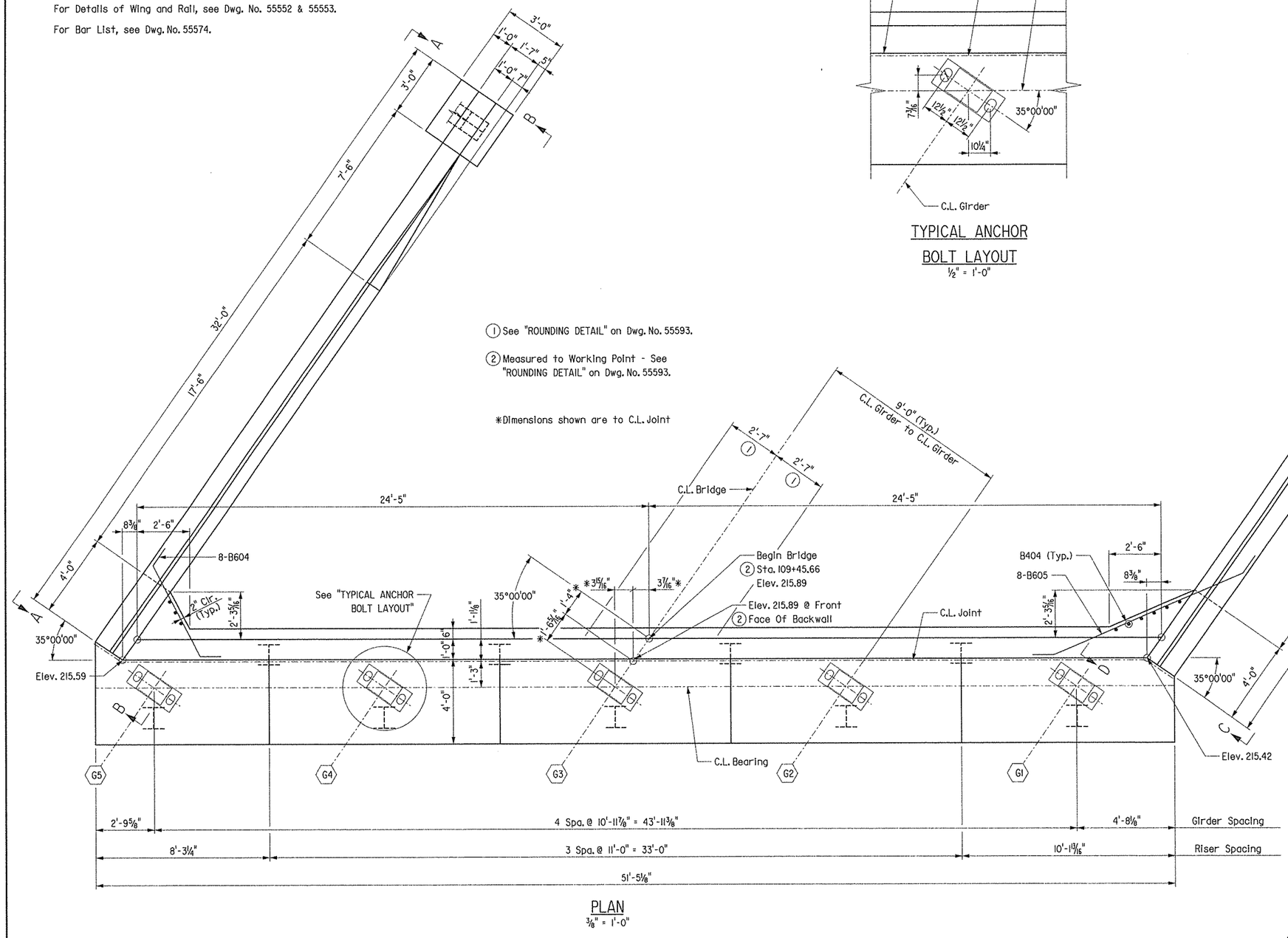


TYPICAL ANCHOR BOLT LAYOUT
½" = 1'-0"

(1) See "ROUNDING DETAIL" on Dwg. No. 55593.

(2) Measured to Working Point - See "ROUNDING DETAIL" on Dwg. No. 55593.

*Dimensions shown are to C.L. Joint



PLAN
⅜" = 1'-0"

NOTE: Class 1 Protective Surface Treatment shall be applied to the roadway face and top of the end bent rail and the top of the backwall.

GENERAL NOTES FOR SUBSTRUCTURE

All concrete shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi and shall be poured in the dry. All exposed corners to be chamfered ¾" unless otherwise noted.

For structural steel in end bents, see Dwg. No. 55598.

All reinforcing steel shall conform to AASHTO M31 or M322 Type A, Grade 60 (yield strength = 60,000 psi).

The backwall above the required construction joint shall not be poured until the girders are in place. Backwall may be placed prior to placing the adjacent concrete deck only if the optional backwall construction joint is used. See "DETAILS FOR BLOCKING EXPANSION JOINT DEVICE" on Dwg. No. 55598 for additional information.

Top reinforcing bars in cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13391
LARRY W. MILLER
3/27/14
BRIDGE ENGINEER

SHEET 1 OF 4
DETAILS OF BENT 1
OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BEG DATE: 01-14 FILENAME: b070240_B11.dgn
CHECKED BY: LWM DATE: 03-07-14 SCALE: AS SHOWN
DESIGNED BY: BEG DATE: 01-14

BRIDGE NO. 07316 DRAWING NO. 55550

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	60	172
				(1) 07316		END BENTS		55551

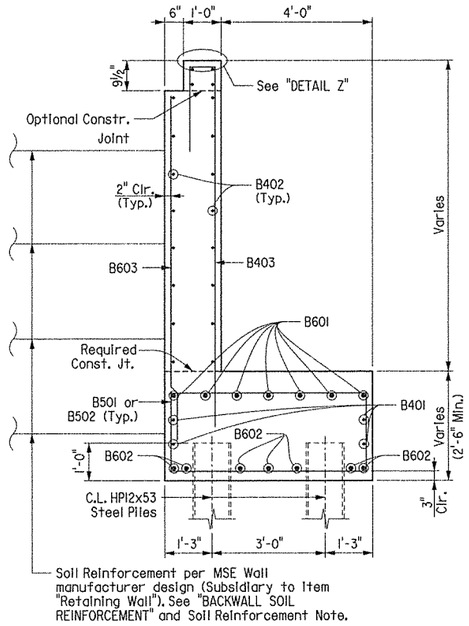
NOTE: Class 1 Protective Surface Treatment shall be applied to the roadway face and top of the end bent rail and the top of the backwall.

Soil Reinforcement Note:

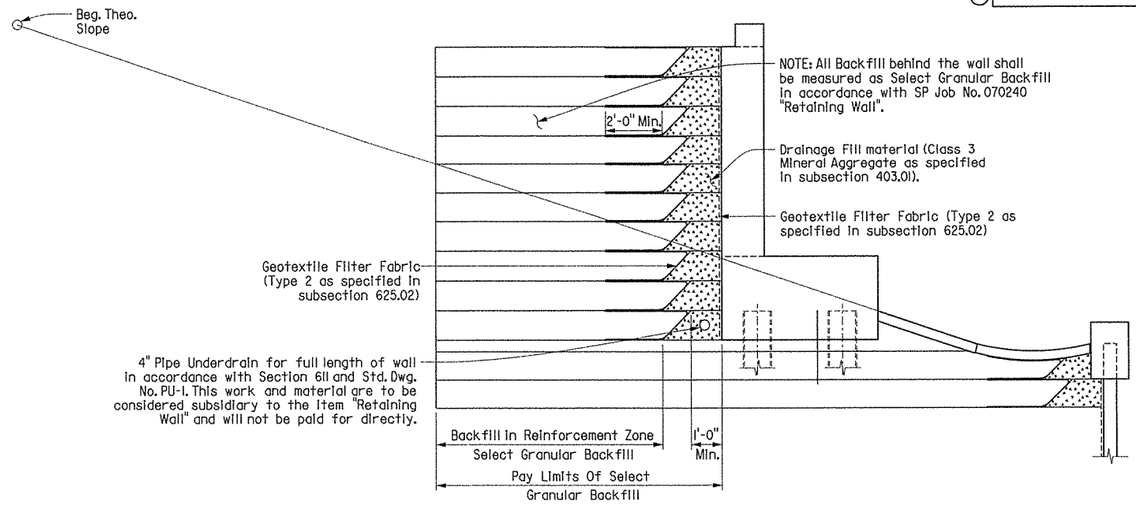
The Contractor shall provide soil reinforcement elements to resist the following concurrent horizontal forces and pressures, perpendicular to Bent 1.

- 65 psf per foot of depth equivalent fluid pressure
- A lateral force of 640 lb/ft at the top of cap
- A lateral live load surcharge of 260 psf

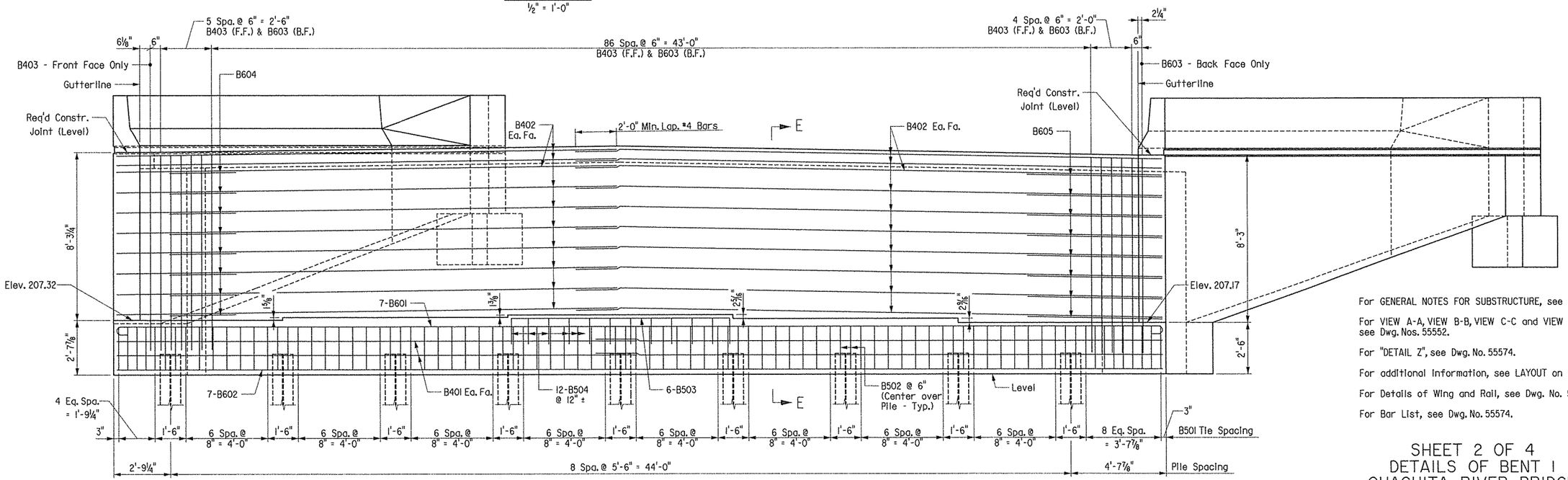
Soil reinforcement shall be attached to the back of End Bents. Type, size, and spacing of soil reinforcement shall be designed by the MSE Wall Manufacturer. The design details and computations shall accompany the wall design submittal for review by the Engineer. Cost is subsidiary to the item "Retaining Wall". See Special Provision Job 070240 "Retaining Wall" for additional information.



SECTION E-E
½" = 1'-0"



BACKWALL SOIL REINFORCEMENT
Scale: ⅜" = 1'-0"
For MSE Wall details see Dwg. No. 55548 & 55549.



ELEVATION
⅜" = 1'-0"
(Looking Back)

STATE OF ARKANSAS
LARRY W. MILLER
REGISTERED PROFESSIONAL ENGINEER
No. 11339
8/29/14
BRIDGE ENGINEER

For GENERAL NOTES FOR SUBSTRUCTURE, see Dwg. No. 55550.

For VIEW A-A, VIEW B-B, VIEW C-C and VIEW D-D, see Dwg. Nos. 55552.

For "DETAIL Z", see Dwg. No. 55574.

For additional information, see LAYOUT on Dwg. No. 55542-55544.

For Details of Wing and Rail, see Dwg. No. 55552 & 55553.

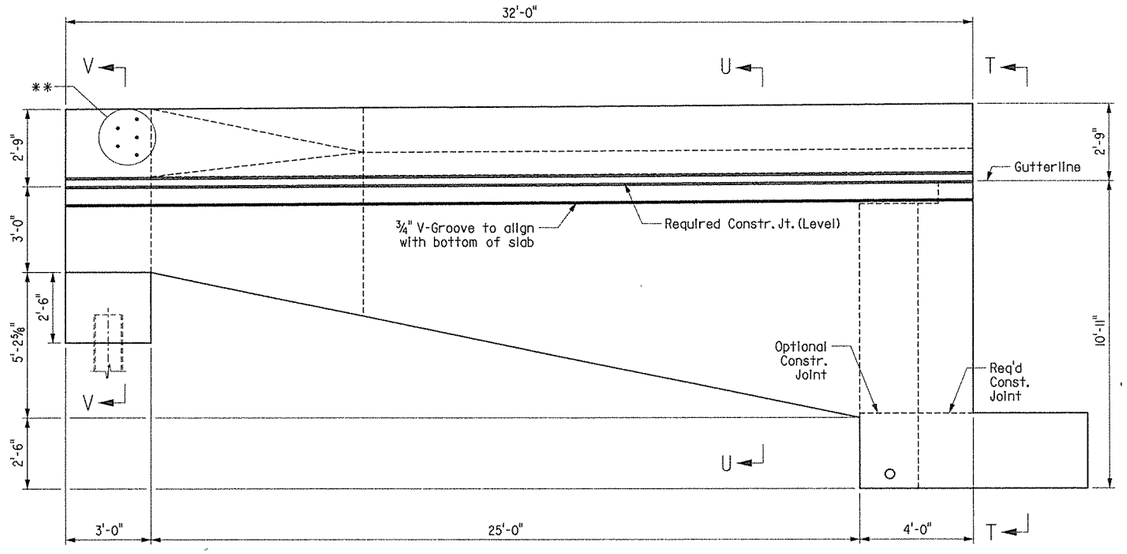
For Bar List, see Dwg. No. 55574.

SHEET 2 OF 4
DETAILS OF BENT 1
OUACHITA RIVER BRIDGE
ROUTE 51 SEC. 2
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

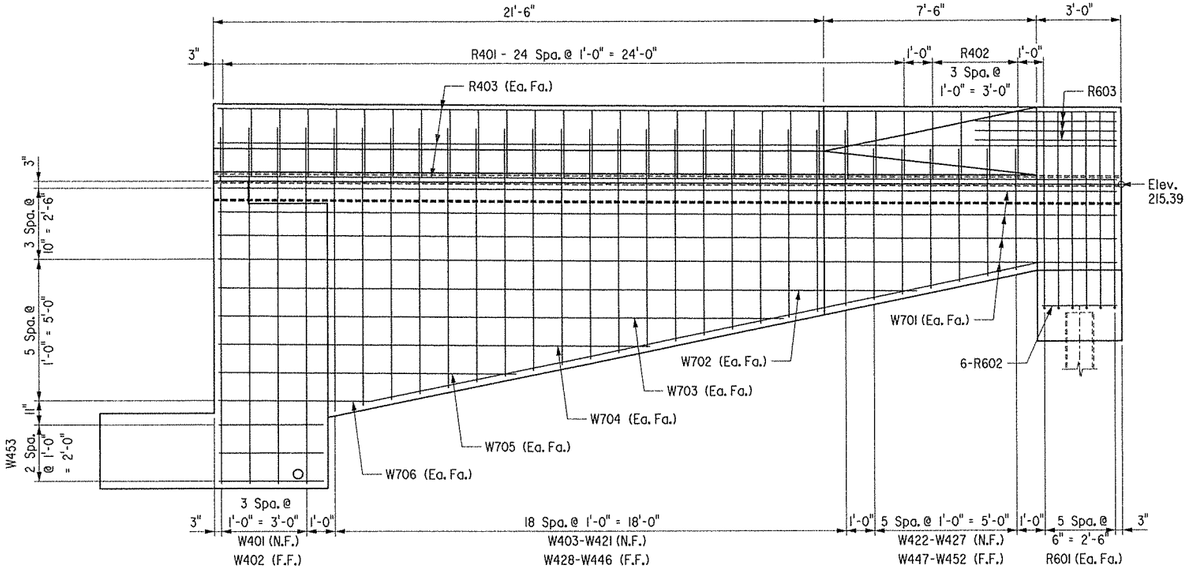
DRAWN BY: BEG DATE: 01-14 FILENAME: b070240_BI2.dgn
CHECKED BY: LWM DATE: 03-07-14 SCALE: AS SHOWN
DESIGNED BY: BEG DATE: 01-14

BRIDGE NO. 07316 DRAWING NO. 55551

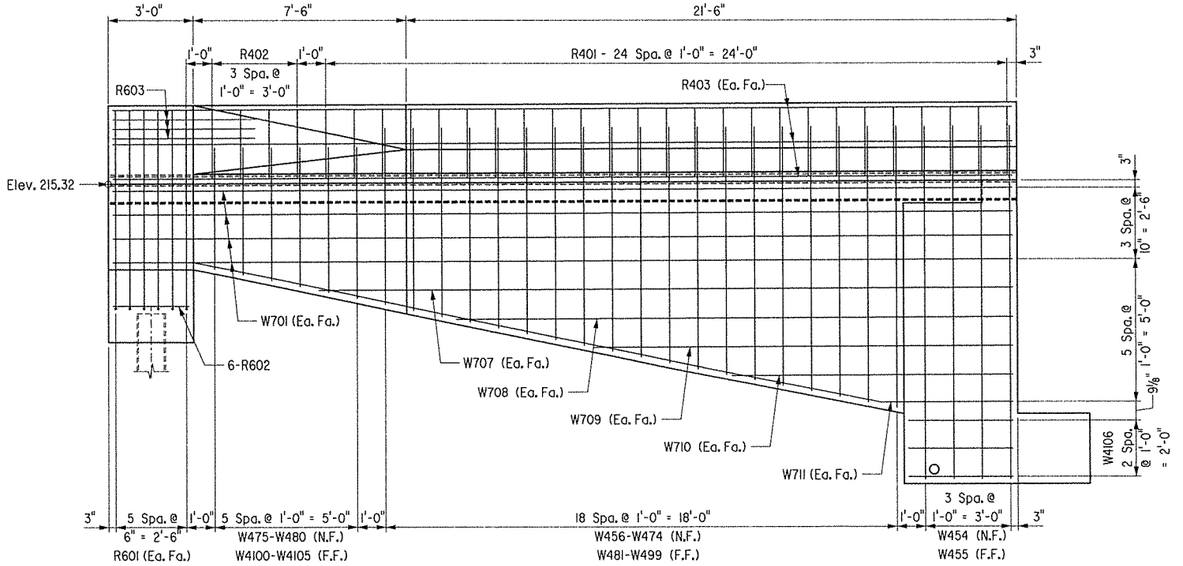
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	61	172
				(1) 07316		END BENTS		55552



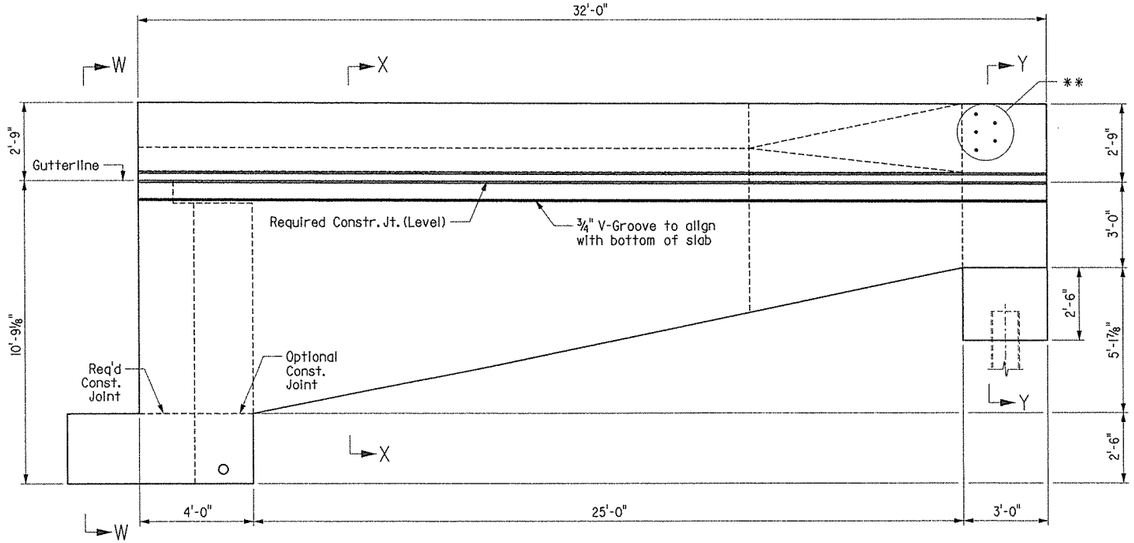
VIEW A-A
⅜" = 1'-0"



VIEW B-B
⅜" = 1'-0"



VIEW D-D
⅜" = 1'-0"



VIEW C-C
⅜" = 1'-0"

** 5 - 1"ø formed holes for guard rail connection. See Std. Dwg. No. GR-10 for bolt spacing and additional connection details.

For GENERAL NOTES FOR SUBSTRUCTURE, see Dwg. No. 55550.

For additional information, see LAYOUT on Dwg. No. 55542-55544.

For Section T-T, Section U-U, Section V-V, Section W-W, Section X-X, and Section Y-Y, see Dwg. No. 55553.

For Bar List, see Dwg. No. 55574.

STATE OF ARKANSAS
Larry W. Miller
REGISTERED PROFESSIONAL ENGINEER
No. 13339
8/29/14
LARRY W. MILLER
BRIDGE ENGINEER

SHEET 3 OF 4
DETAILS OF BENT 1
OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

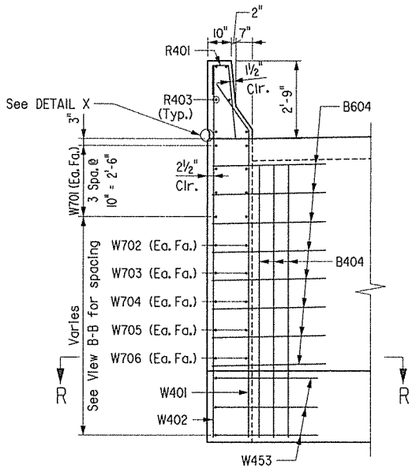
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

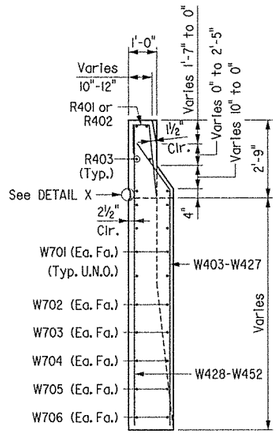
DRAWN BY: BEG DATE: 01-14 FILENAME: b070240_Bl3.dgn
CHECKED BY: LWM DATE: 03-07-14 SCALE: AS SHOWN
DESIGNED BY: BEG DATE: 01-14

BRIDGE NO. 07316 DRAWING NO. 55552

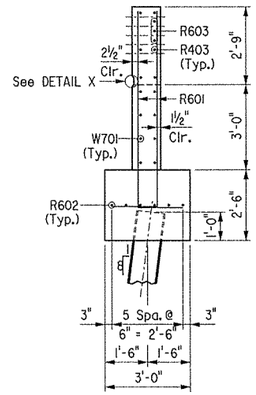
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	62	172
				(1) 07316		END BENTS		55553



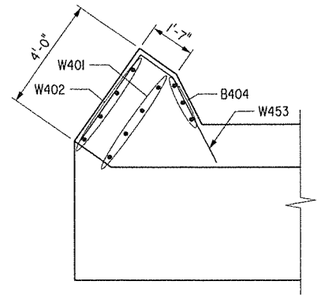
SECTION T-T
3/8" = 1'-0"



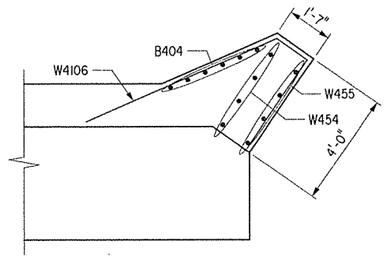
SECTION U-U
3/8" = 1'-0"



SECTION V-V
3/8" = 1'-0"



SECTION R-R
3/8" = 1'-0"



SECTION S-S
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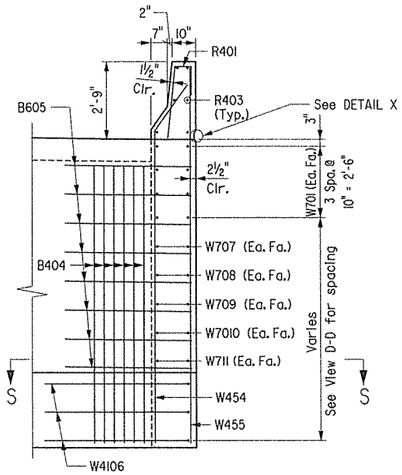
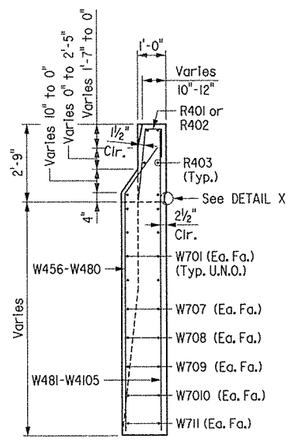
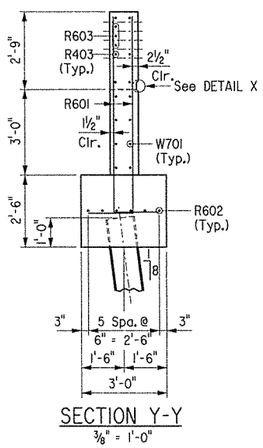


SECTION W-W
3/8" = 1'-0"



SECTION X-X
3/8" = 1'-0"



SECTION Y-Y
3/8" = 1'-0"

For GENERAL NOTES FOR SUBSTRUCTURE, see Dwg. No. 55550.

For additional information, see LAYOUT on Dwg. No. 55542-55544.

For View B-B and View D-D, see Dwg. No. 55552.

For Bar List and additional details, see Dwg. No. 55574.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11339
8-27-14
LARRY W. MILLER
BRIDGE ENGINEER

SHEET 4 OF 4
DETAILS OF BENT 1
OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

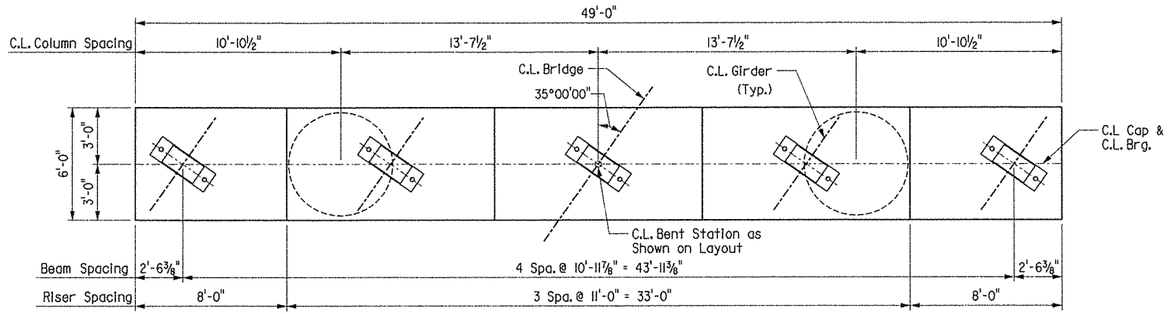
DRAWN BY: BEG DATE: 01-14 FILENAME: b070240_Bl4.dgn

CHECKED BY: LWM DATE: 03-07-14 SCALE: AS SHOWN

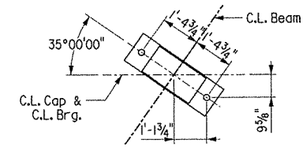
DESIGNED BY: BEG DATE: 01-14

BRIDGE NO. 07316 DRAWING NO. 55553

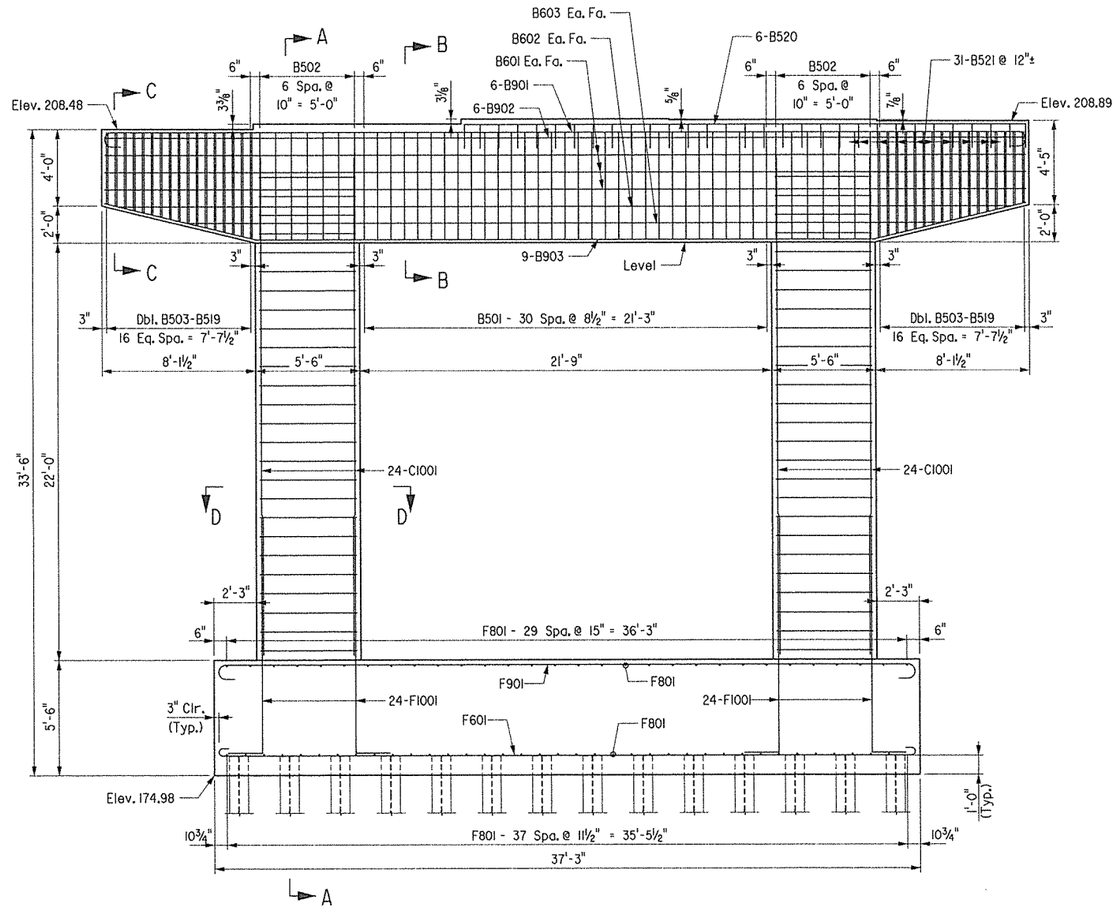
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	63	172
				(1) 07316		BENT 2 DETAILS		55554



PLAN
¼" = 1'-0"



TYPICAL ANCHOR BOLT LAYOUT
⅜" = 1'-0"



ELEVATION
¼" = 1'-0"
(Looking Ahead)

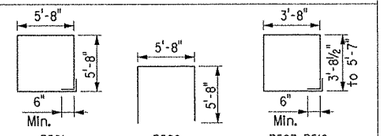
For sections and footing plan, see Dwg. No. 55555.

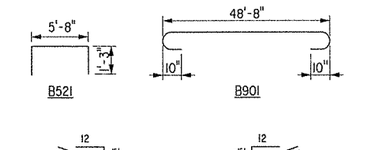
For substructure general notes, see Dwg. No. 55555.

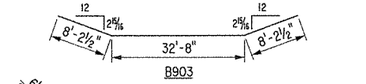
BAR LIST - BENT 2

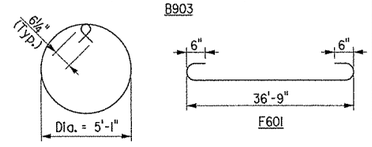
Mark	Number Required	Length	Pin Dia.
B501	31	23'-2"	2 1/2"
B502	14	16'-9"	2 1/2"
B503 to B519	4 ea.	15'-3" to 19'-0"	2 1/2"
B520	6	29'-8"	Str.
B521	31	8'-0"	2 1/2"
B601	6	48'-8"	Str.
B602	2	47'-3"	Str.
B603	2	40'-0"	Str.
B901	6	51'-2"	9"
B902	6	48'-8"	Str.
B903	9	49'-1"	9"
C501	52	17'-4"	3 3/4"
C1001	48	26'-3"	Str.
F601	20	38'-1"	4 1/2"
F801	68	13'-10"	6"
F901	25	39'-3"	9"
F1001	48	13'-9"	10"

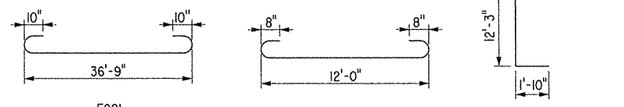
BENDING DIAGRAMS
(Dimensions are out to out of bars)











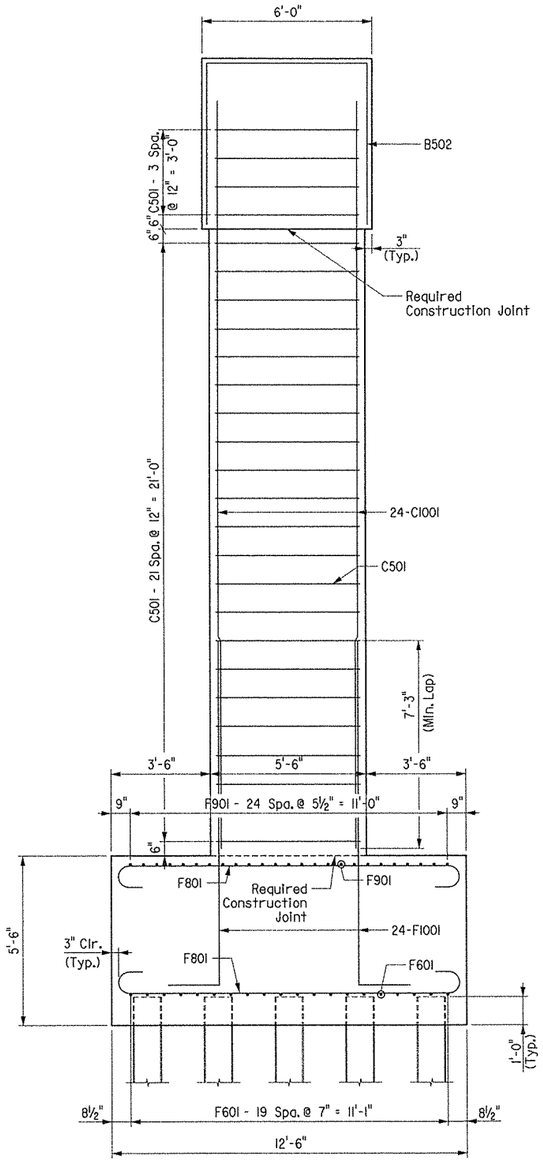
STATE OF ARKANSAS
Larry W. Miller
REGISTERED PROFESSIONAL ENGINEER
No. 13339
LARRY W. MILLER
5/29/14
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF BENT 2
OUACHITA RIVER BRIDGE
ROUTE 51 SEC. 2
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

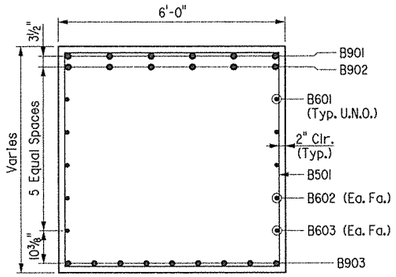
DRAWN BY: BEG DATE: 01-14 FILENAME: b070240_B21.dgn
CHECKED BY: LWM DATE: 03-07-14 SCALE: AS SHOWN
DESIGNED BY: BEG DATE: 01-14
BRIDGE NO. 07316 DRAWING NO. 55554

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

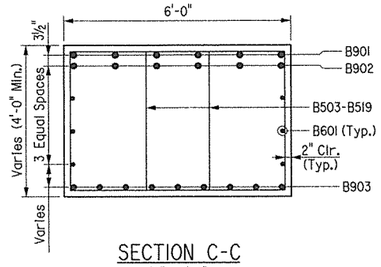
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		070240	64	172
(1) 07316		BENT 2 DETAILS		55555



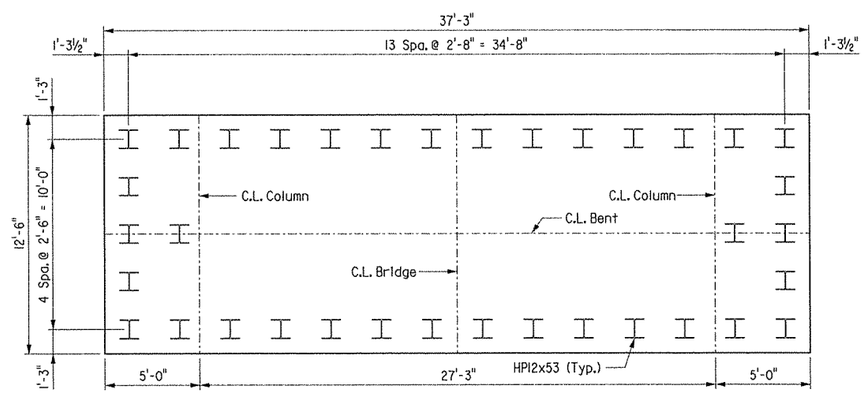
SECTION A-A
3/8" = 1'-0"



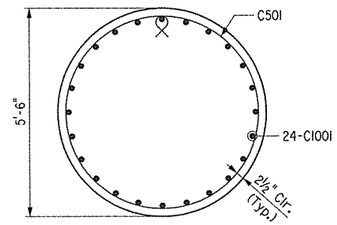
SECTION B-B
½" = 1'-0"



SECTION C-C
½" = 1'-0"



FOOTING PLAN
¼" = 1'-0"



SECTION D-D
½" = 1'-0"

GENERAL NOTES

All Concrete shall be Class "S" with a minimum 28-day compressive strength f'c = 3500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted.

All reinforcing steel shall conform AASHTO M31 or M322 Type A, Grade 60 (yield strength = 60,000 psi)

Reinforcing bars in top of cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

For additional information, see layout.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11339
LARRY W. MILLER
8/29/14
BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF BENT 2
OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: BEG DATE: 01-14 FILENAME: b070240_B22.dgn
CHECKED BY: LWM DATE: 03-07-14 SCALE: AS SHOWN
DESIGNED BY: BEG DATE: 01-14

BRIDGE NO. 07316 DRAWING NO. 55555

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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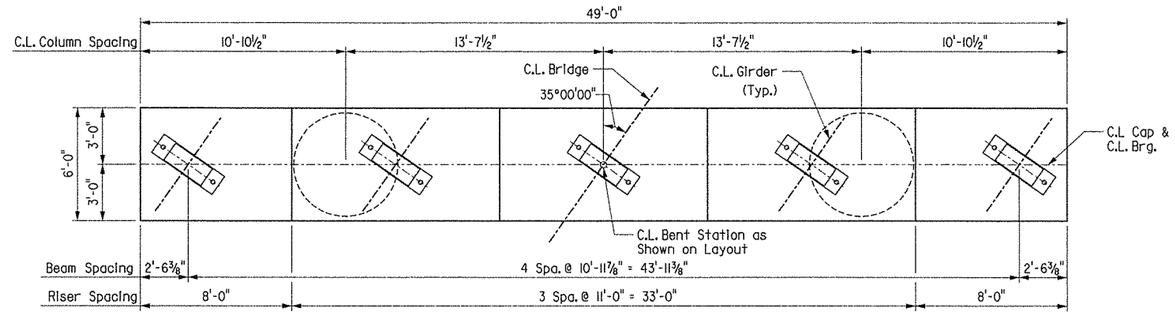
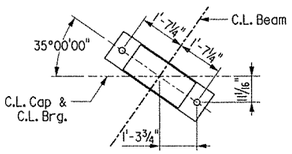
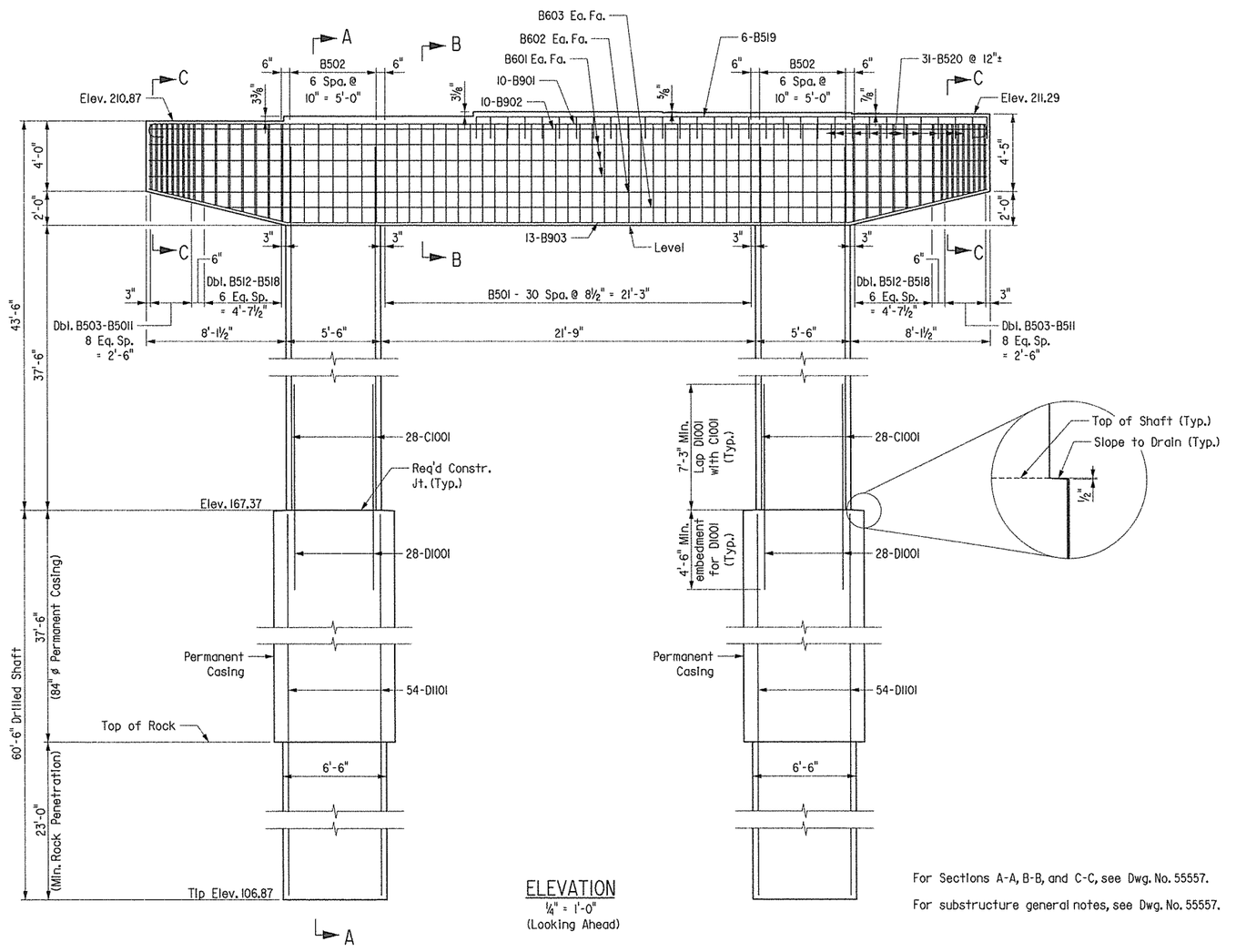
				(1) 07316		BENT 3 DETAILS		55556



PLAN
¼" = 1'-0"



TYPICAL ANCHOR BOLT LAYOUT
⅜" = 1'-0"



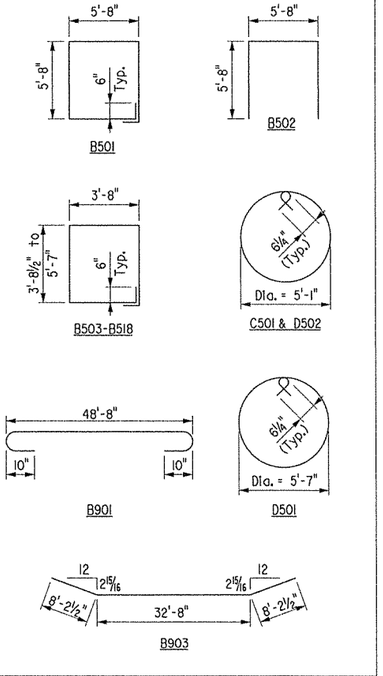
ELEVATION
¼" = 1'-0"
(Looking Ahead)

For Sections A-A, B-B, and C-C, see Dwg. No. 55557.

For substructure general notes, see Dwg. No. 55557.

BAR LIST

Mark	Number Required	Length	Pin Dia.	Bending Diagrams (Dimensions are out to out of bars.)
B501	31	23'-2"	2½"	
B502	14	16'-10"	2½"	
B503 to B511	4 ea.	15'-3" to 16'-6"	2½"	
B512 to B518	4 ea.	16'-11" to 19'-0"	2½"	
B519	6	29'-8"	Str.	
B520	31	8'-0"	2½"	
B601	6	48'-8"	Str.	
B602	2	47'-3"	Str.	
B603	2	40'-0"	Str.	
B901	10	51'-2"	9"	
B902	10	48'-8"	Str.	
B903	13	49'-1"	9"	
C501	86	17'-4"	3¾"	
C1001	56	42'-0"	Str.	
[1] D501	122	18'-11"	3¾"	
[1] D502	8	17'-4"	3¾"	
[1] D1001	56	11'-9"	Str.	
[1] D1101	108	60'-0"	Str.	



[1] D501, D502, D1001, and D1101 Bars are non-pay items and are subsidiary to SP Job 070240 "Drilled Shaft Foundations"

STATE OF ARKANSAS
Larry W. Miller
REGISTERED PROFESSIONAL ENGINEER
No. 11339
LARRY W. MILLER
3/29/14
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF BENT 3
OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

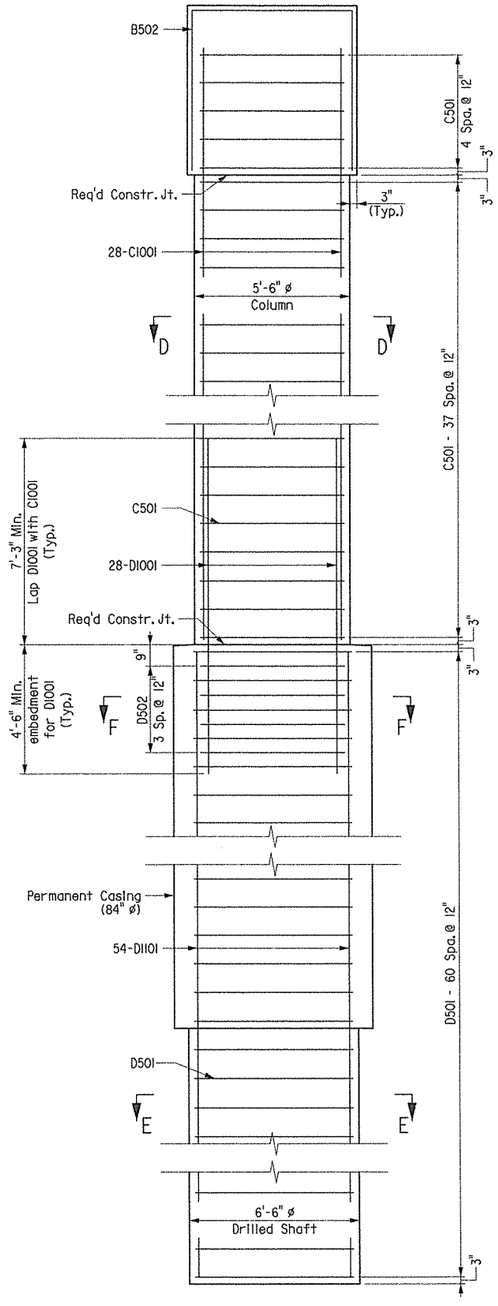
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

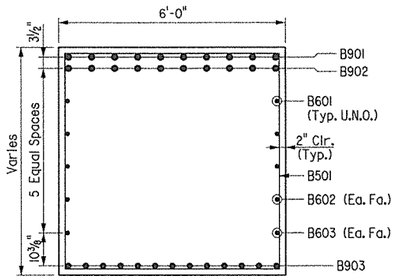
DRAWN BY: BEG DATE: 01-14
CHECKED BY: LWM DATE: 03-07-14
DESIGNED BY: BEG DATE: 01-14
FILENAME: b070240_B31.dgn
SCALE: AS SHOWN

BRIDGE NO. 07316 DRAWING NO. 55556

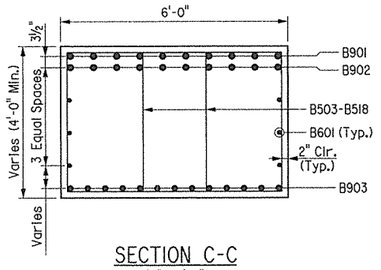
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	44	172
				(1) 07316		BENT 3 DETAILS		55557



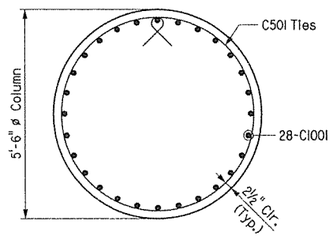
SECTION A-A
3/8" = 1'-0"



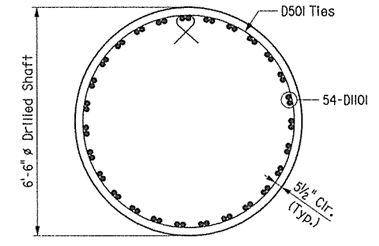
SECTION B-B
½" = 1'-0"



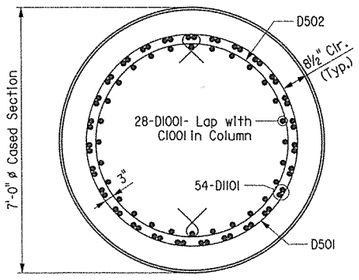
SECTION C-C
½" = 1'-0"



SECTION D-D
½" = 1'-0"



SECTION E-E
½" = 1'-0"



SECTION F-F
½" = 1'-0"

GENERAL NOTES

All Concrete shall be Class "S" with a minimum 28-day compressive strength f'c = 3500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted.

All reinforcing steel shall conform AASHTO M31 or M322 Type A, Grade 60 (yield strength = 60,000 psi)

Reinforcing bars in top of cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

For additional information, see layout.

STATE OF ARKANSAS
LARRY W. MILLER
REGISTERED PROFESSIONAL ENGINEER
No. 11339
8/29/14
BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF BENT 3
OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

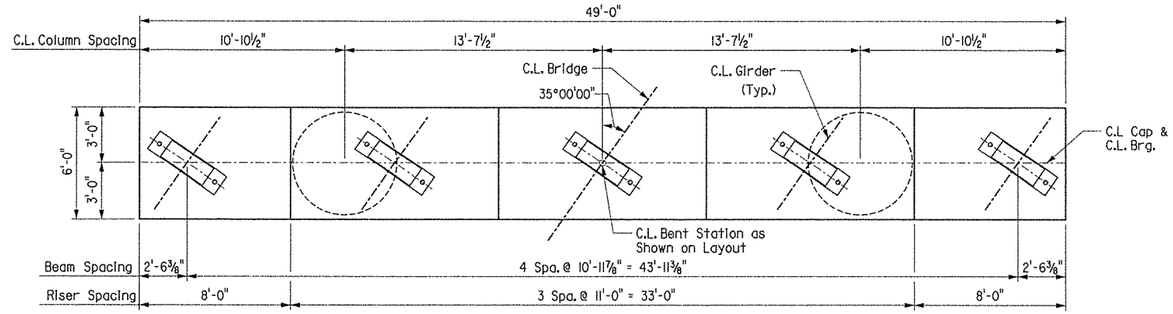
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

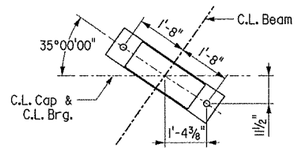
DRAWN BY: BEG DATE: 01-14
CHECKED BY: LWM DATE: 03-07-14
DESIGNED BY: BEG DATE: 01-14
FILENAME: b070240_B32.dgn
SCALE: AS SHOWN

BRIDGE NO. 07316 DRAWING NO. 55557

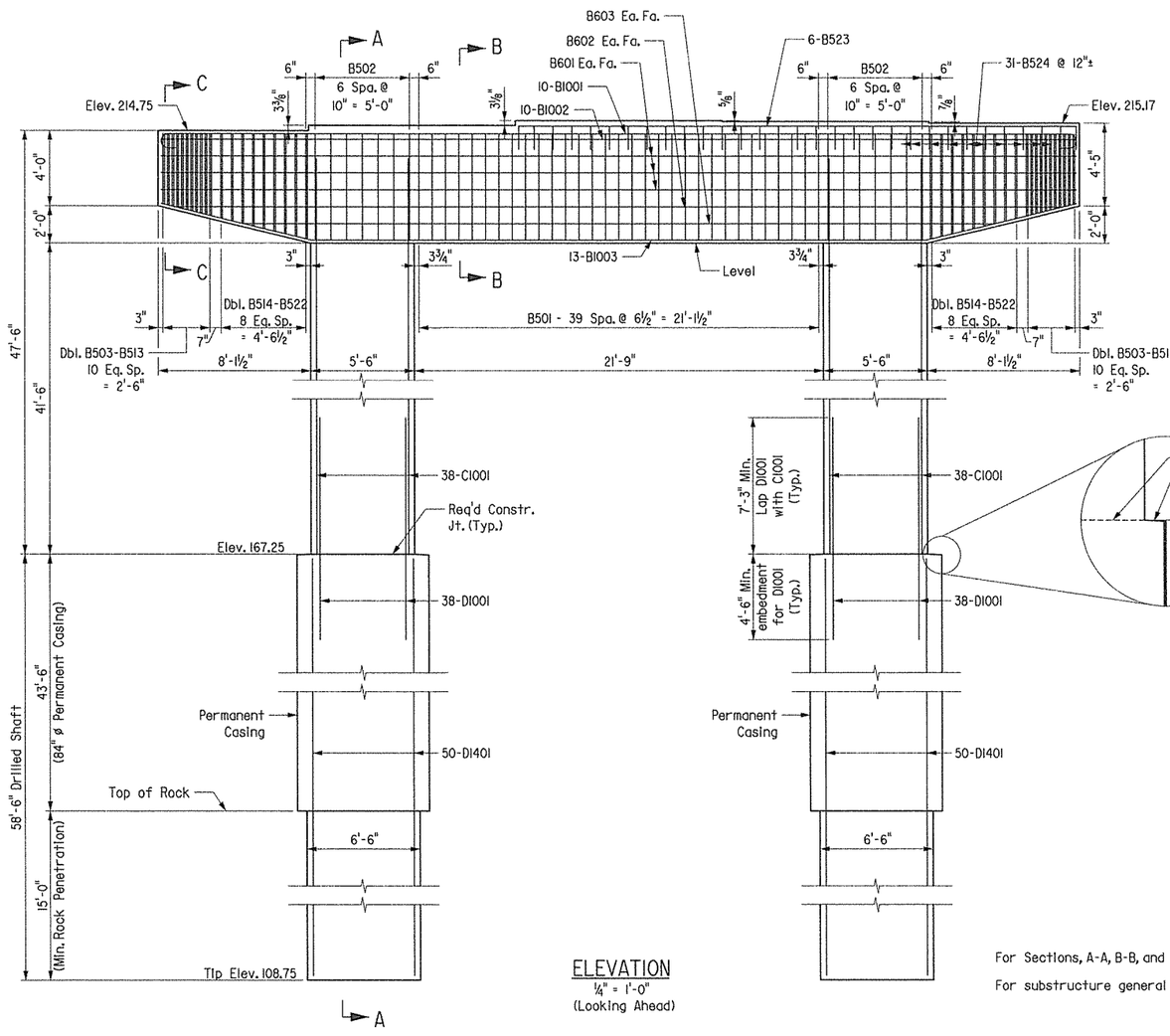
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	67	172
				(1) 07316		BENT 4 DETAILS		55558



PLAN
¼" = 1'-0"



TYPICAL ANCHOR BOLT LAYOUT
⅜" = 1'-0"



ELEVATION
¼" = 1'-0"
(Looking Ahead)

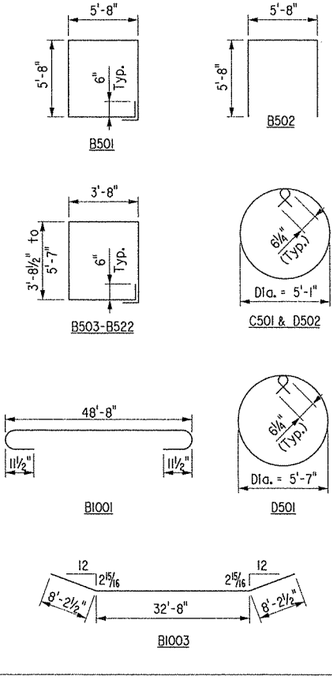
For Sections, A-A, B-B, and C-D, see Dwg. No. 55559.

For substructure general notes, see Dwg. No. 55559.

BAR LIST

Mark	Number Required	Length	Pin Dia.
B501	40	23'-2"	2½"
B502	14	16'-10"	2½"
B503 to B513	4 ea.	15'-3" to 16'-6"	2½"
B514 to B522	4 ea.	16'-10" to 19'-0"	2½"
B523	6	29'-8"	Str.
B524	31	8'-0"	2½"
B601	6	48'-8"	Str.
B602	2	47'-3"	Str.
B603	2	40'-0"	Str.
BI001	10	51'-6"	10"
BI002	10	48'-8"	Str.
BI003	13	49'-1"	10"
CI501	94	17'-4"	3¾"
CI001	76	46'-0"	Str.
[1] DI501	118	18'-11"	3¾"
[1] D502	8	17'-4"	3¾"
[1] DI001	76	11'-9"	Str.
[1] DI401	100	58'-0"	Str.

Bending Diagrams (Dimensions are out to out of bars.)



[1] D501, D502, DI001, and DI401 Bars are non-pay items and are subsidiary to SP Job 070240 "Drilled Shaft Foundations"

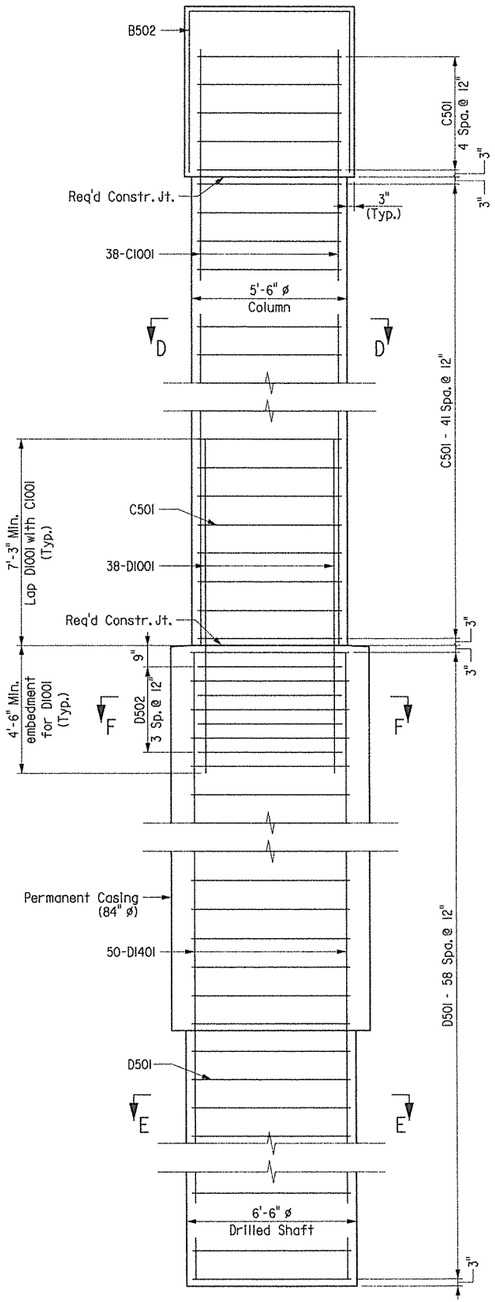
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11339
LARRY W. MILLER
4-29-14
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF BENT 4
OUACHITA RIVER BRIDGE
ROUTE 51 SEC. 2
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

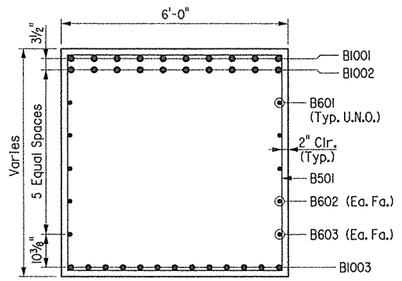
DRAWN BY: BEG DATE: 01-14
CHECKED BY: LWM DATE: 03-07-14
DESIGNED BY: BEG DATE: 01-14
FILENAME: b070240_B41.dgn
SCALE: AS SHOWN

BRIDGE NO. 07316 DRAWING NO. 55558

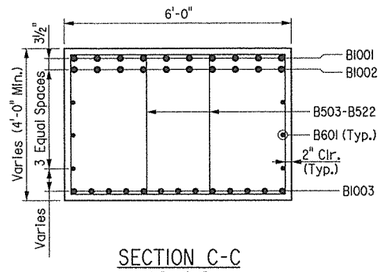
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	68	172
				(1) 07316		BENT 4 DETAILS		55559



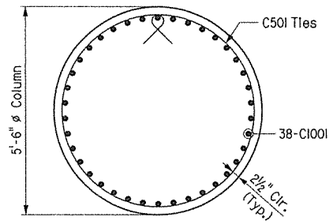
SECTION A-A
3/8" = 1'-0"



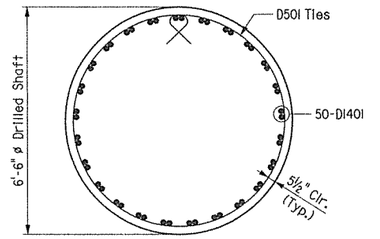
SECTION B-B
½" = 1'-0"



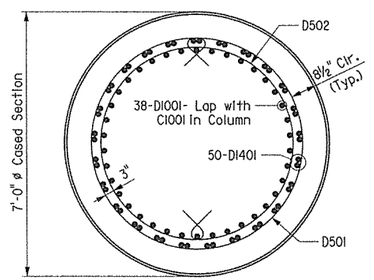
SECTION C-C
½" = 1'-0"



SECTION D-D
½" = 1'-0"



SECTION E-E
½" = 1'-0"



SECTION F-F
½" = 1'-0"

GENERAL NOTES

All Concrete shall be Class "S" with a minimum 28-day compressive strength f'c = 3500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted.

All reinforcing steel shall conform AASHTO M31 or M322 Type A, Grade 60 (yield strength = 60,000 psi)

Reinforcing bars in top of cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

For additional information, see layout.

STATE OF ARKANSAS
Larry W. Miller
REGISTERED PROFESSIONAL ENGINEER
No. 11339
LARRY W. MILLER
5/29/14
BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF BENT 4
OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

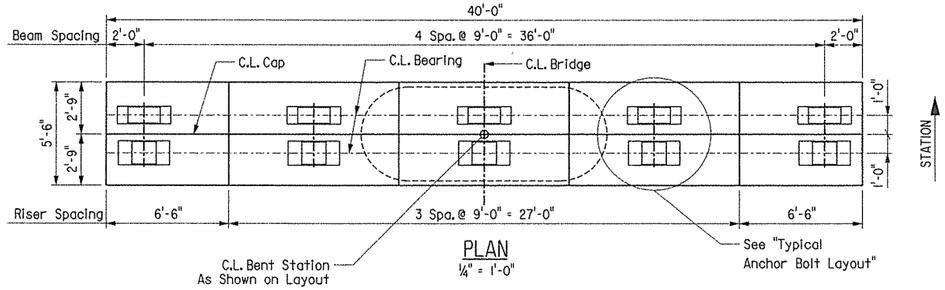
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

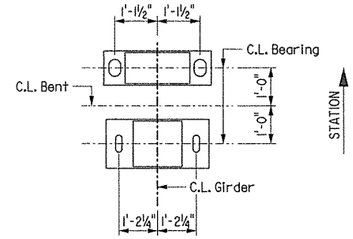
DRAWN BY: BEG DATE: 01-14 FILENAME: b070240_B42.dgn
CHECKED BY: LWM DATE: 03-07-14 SCALE: AS SHOWN
DESIGNED BY: BEG DATE: 01-14

BRIDGE NO. 07316 DRAWING NO. 55559

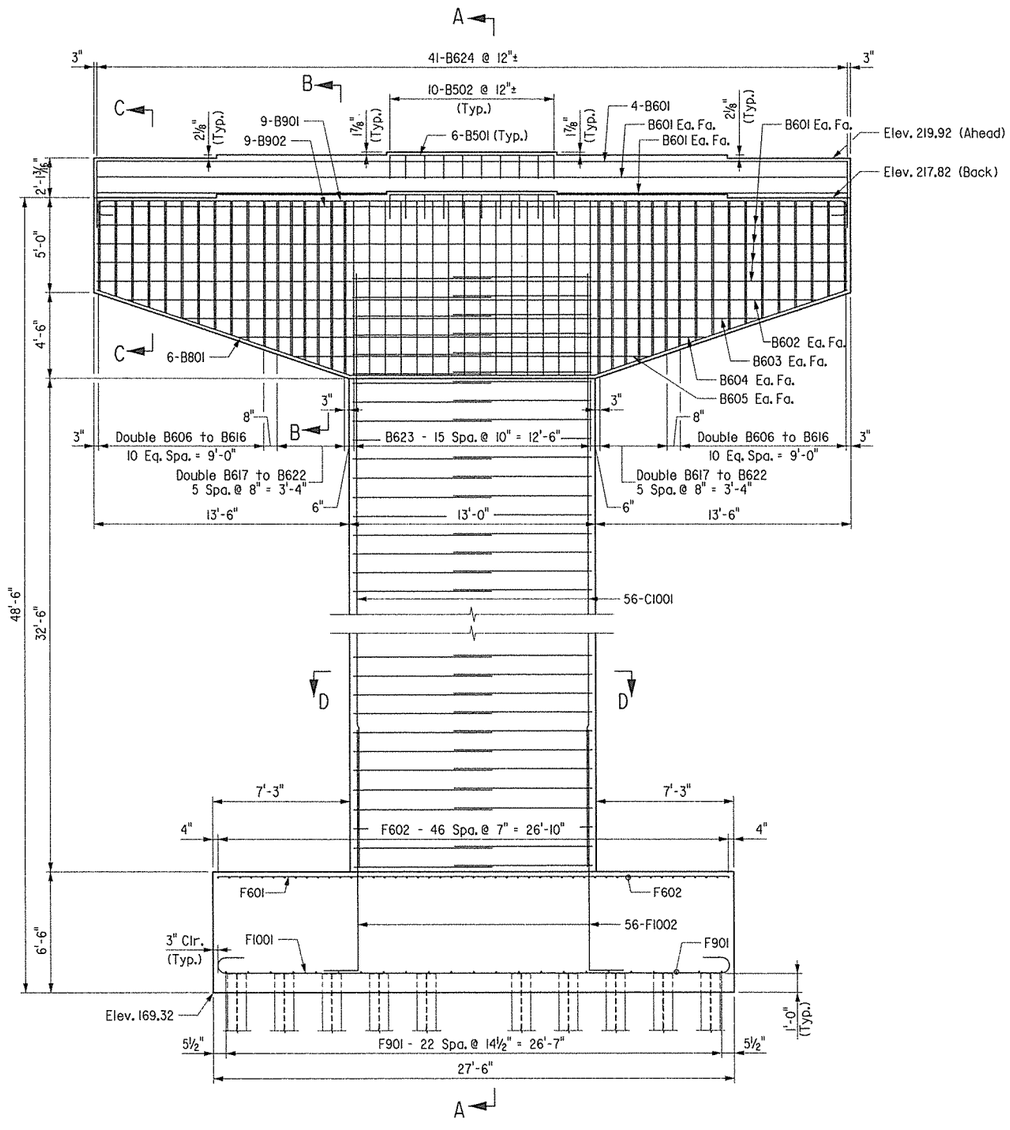
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	69	172
				(1) 07316		BENT 5 DETAILS		55560



PLAN
1/4" = 1'-0"



TYPICAL ANCHOR
BOLT LAYOUT
½" = 1'-0"



ELEVATION
¼" = 1'-0"
(Looking Ahead)

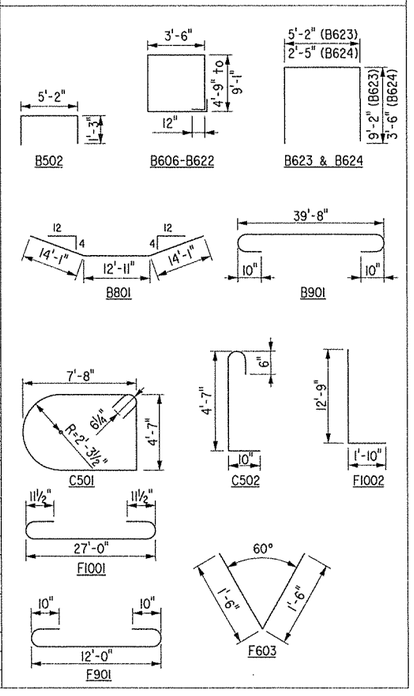
For sections and footing plan, see Dwg. No. 55561.

For substructure general notes, see Dwg. No. 55561.

BAR LIST - BENT 5

Mark	Number Required	Length	Bin Dia.
B501	12	8'-8"	Str.
B502	20	7'-6"	2½"
B601	16	39'-8"	Str.
B602	2	36'-7"	Str.
B603	2	30'-8"	Str.
B604	2	24'-9"	Str.
B605	2	18'-10"	Str.
B606 to B616	4 ea.	17'-8" to 23'-8"	4½"
B617 to B622	4 ea.	24'-2" to 26'-4"	4½"
B623	16	23'-2"	4½"
B624	41	9'-1"	4½"
B801	6	41'-1"	6"
B901	9	42'-2"	9"
B902	9	39'-8"	Str.
C501	78	23'-3"	3¾"
C502	78	5'-11"	3¾"
C1001	56	37'-9"	Str.
F601	21	27'-0"	Str.
F602	47	12'-0"	Str.
F603	64	2'-10"	4½"
F901	23	14'-6"	9"
F1001	27	29'-10"	10"
F1002	56	14'-3"	10"

BENDING DIAGRAMS
(Dimensions are out to out of bars)



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11339
LARRY W. MILLER
BRIDGE ENGINEER
8/29/14

SHEET 1 OF 2
DETAILS OF BENT 5
OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BEG DATE: 01-14 FILENAME: b070240_B51.dgn
CHECKED BY: LWM DATE: 03-07-14 SCALE: AS SHOWN
DESIGNED BY: BEG DATE: 01-14

BRIDGE NO. 07316 DRAWING NO. 55560

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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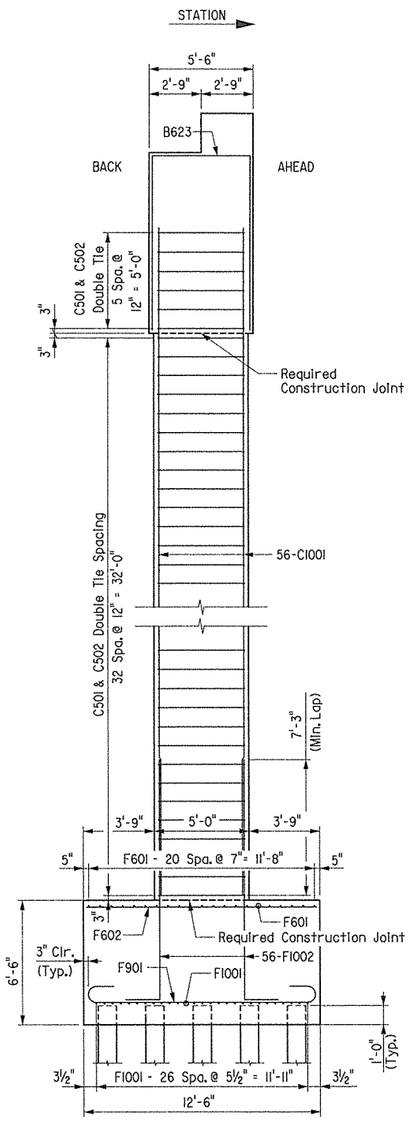
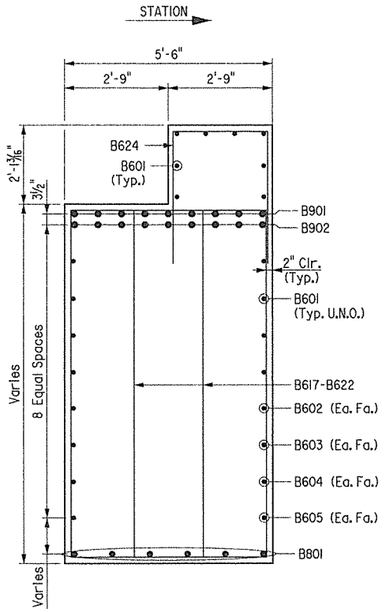
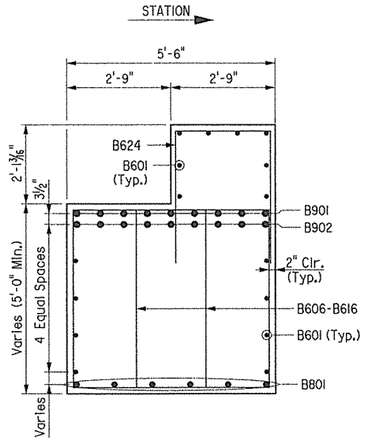
				JOB NO.		070240	70	172
				(1) 07316		BENT 5 DETAILS		55561



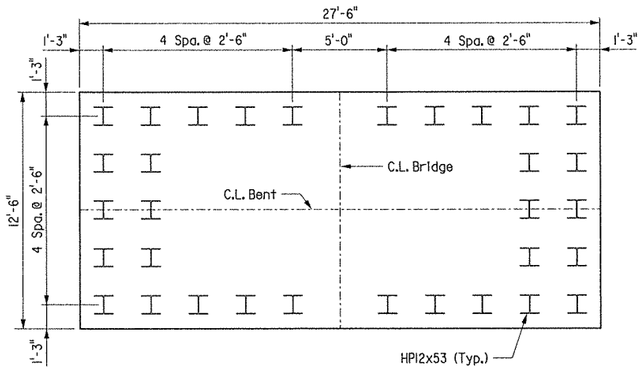
SECTION A-A
¼" = 1'-0"



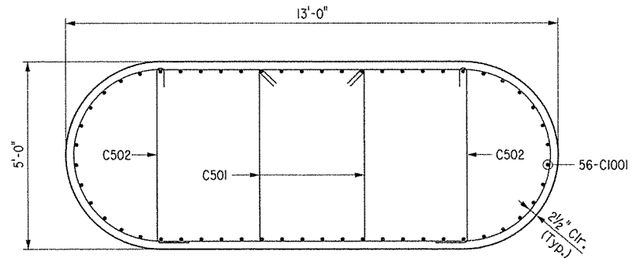
SECTION B-B
½" = 1'-0"



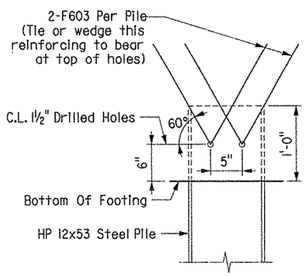
SECTION C-C
½" = 1'-0"



FOOTING PLAN
¼" = 1'-0"



SECTION D-D
½" = 1'-0"



DETAIL AT PILE TOP
No Scale

Drilled holes will not be paid for directly but shall be considered incidental to the item "STEEL PILING (HP12x53)".

GENERAL NOTES

All Concrete shall be Class "S" with a minimum 28-day compressive strength f'c = 3500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted.

All reinforcing steel shall conform AASHTO M31 or M322 Type A, Grade 60 (yield strength = 60,000 psi)

Reinforcing bars in top of cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

For additional information, see layout.

STATE OF ARKANSAS
Larry W. Miller
REGISTERED PROFESSIONAL ENGINEER
No. 13339
9/29/14
LARRY W. MILLER
BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF BENT 5
OUACHITA RIVER BRIDGE

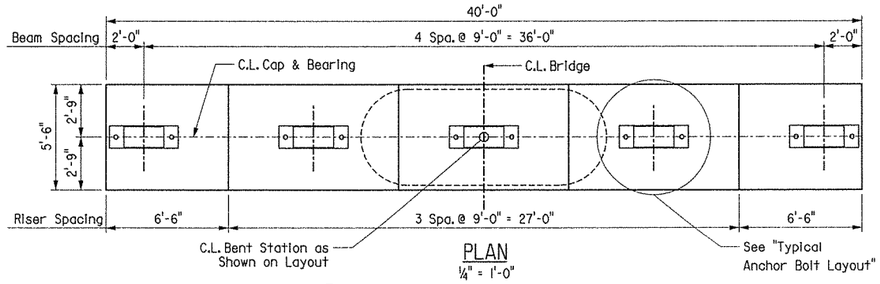
ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

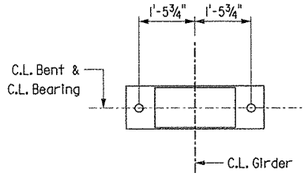
DRAWN BY: BEG DATE: 01-14
CHECKED BY: LWM DATE: 03-07-14
DESIGNED BY: BEG DATE: 01-14
FILENAME: b070240_B52.dgn
SCALE: AS SHOWN

BRIDGE NO. 07316 DRAWING NO. 55561

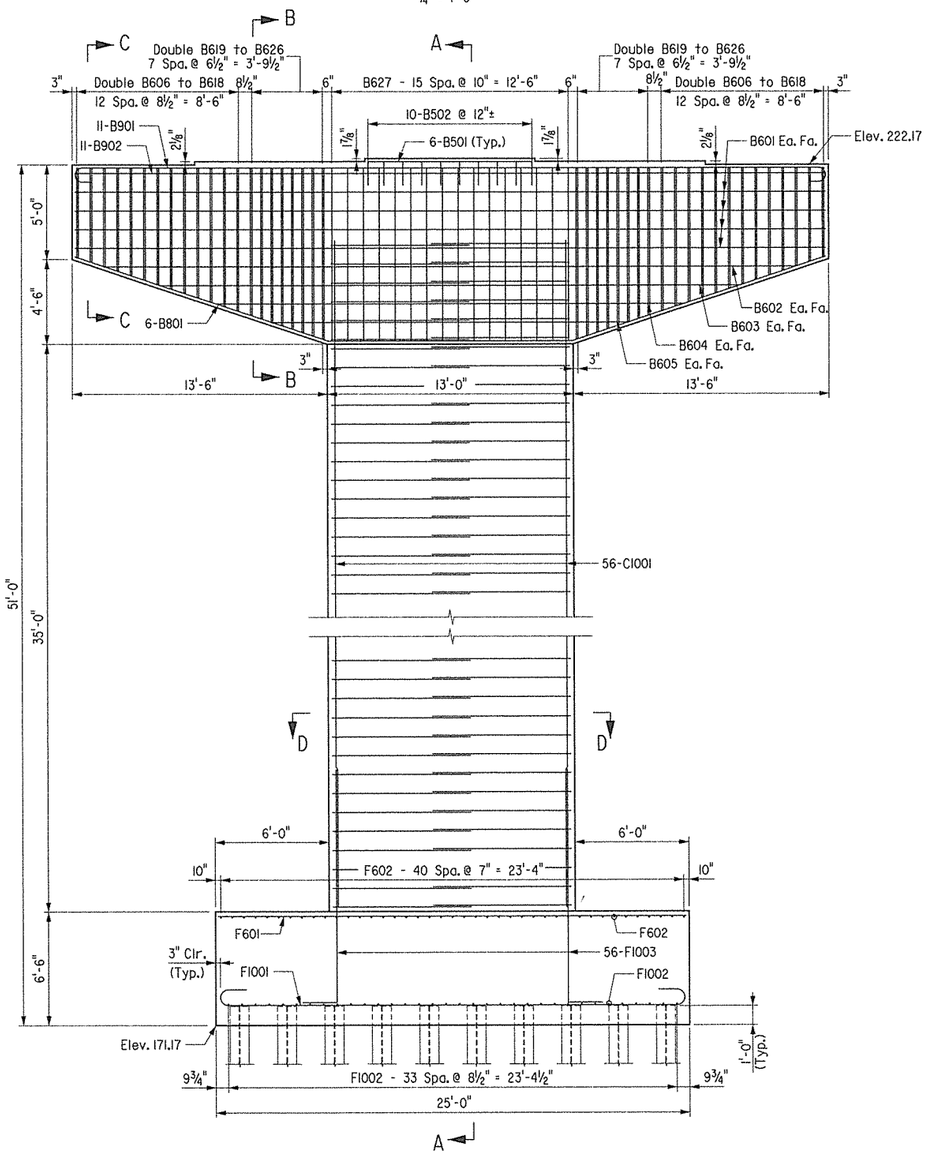
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	71	172
				(1) 07316		BENT 6 DETAILS		55562



PLAN
1/4" = 1'-0"



TYPICAL ANCHOR BOLT LAYOUT
1/2" = 1'-0"

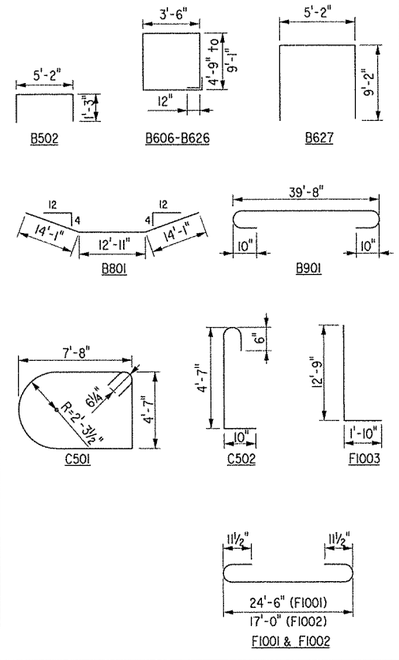


ELEVATION
1/4" = 1'-0"
(Looking Ahead)

BAR LIST - BENT 6

Mark	Number Required	Length	Pin Dia.
B501	6	8'-8"	Str.
B502	10	7'-6"	2 1/2"
B601	8	39'-8"	Str.
B602	2	36'-7"	Str.
B603	2	30'-8"	Str.
B604	2	24'-9"	Str.
B605	2	18'-10"	Str.
B606 to B618	4 ea.	17'-8" to 23'-4"	4 1/2"
B619 to B626	4 ea.	23'-10" to 26'-4"	4 1/2"
B627	16	23'-2"	4 1/2"
B801	6	41'-1"	6"
B901	11	42'-2"	9"
B902	11	39'-8"	Str.
C501	84	23'-3"	3 3/4"
C502	84	5'-11"	3 3/4"
C1001	56	40'-3"	Str.
F601	29	24'-6"	Str.
F602	41	17'-0"	Str.
F1001	25	27'-4"	10"
F1002	34	19'-10"	10"
F1003	56	14'-3"	10"

BENDING DIAGRAMS
(Dimensions are out to out of bars)



For sections and footing plan, see Dwg. No. 55563.

For substructure general notes, see Dwg. No. 55563.

STATE OF ARKANSAS
LARRY W. MILLER
REGISTERED PROFESSIONAL ENGINEER
No. 11339
6/27/14
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF BENT 6
OUACHITA RIVER BRIDGE

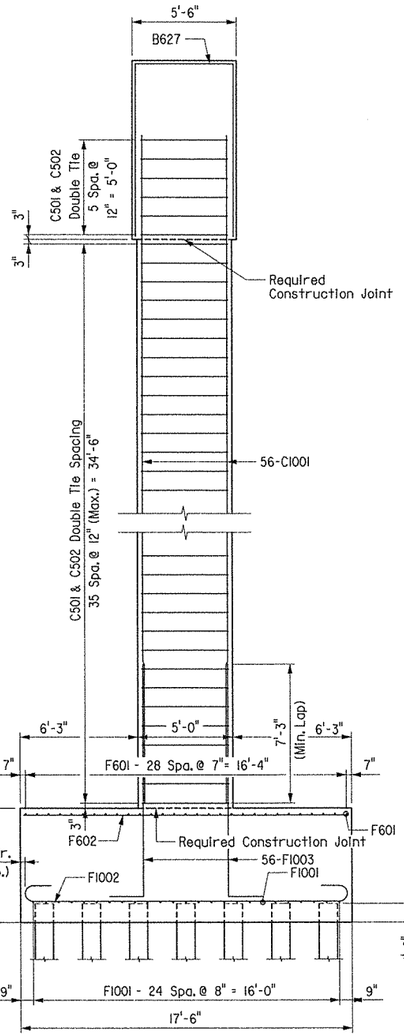
ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

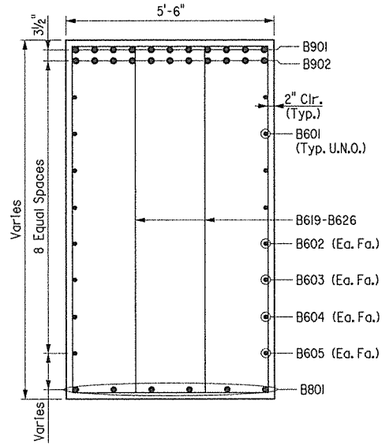
DRAWN BY: BEG DATE: 10-11 FILENAME: b070240_B61.dgn
CHECKED BY: LWM DATE: 03-07-14 SCALE: AS SHOWN
DESIGNED BY: BEG DATE: 10-11

BRIDGE NO. 07316 DRAWING NO. 55562

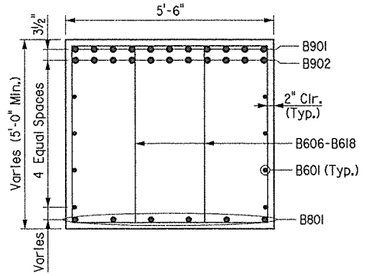
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	72	172
				(1) 07316		BENT 6 DETAILS		55563



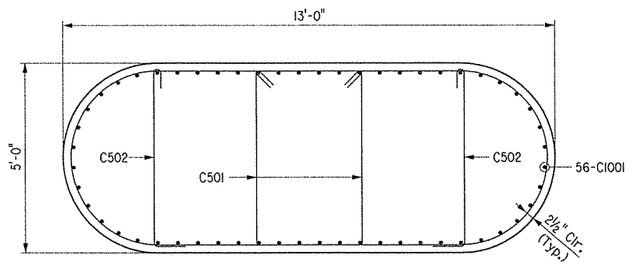
SECTION A-A
1/4" = 1'-0"



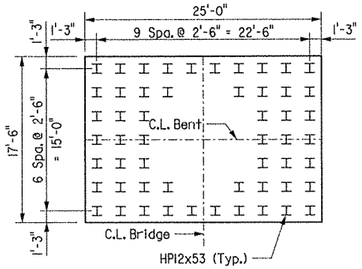
SECTION B-B
1/2" = 1'-0"



SECTION C-C
1/2" = 1'-0"



SECTION D-D
1/2" = 1'-0"



FOOTING PLAN
1/8" = 1'-0"

GENERAL NOTES

All Concrete shall be Class "S" with a minimum 28-day compressive strength f'c = 3500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted.

All reinforcing steel shall conform AASHTO M31 or M322 Type A, Grade 60 (yield strength = 60,000 psi)

Reinforcing bars in top of cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

For additional information, see layout.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11339
8/29/14
LARRY W. MILLER
BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF BENT 6
OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

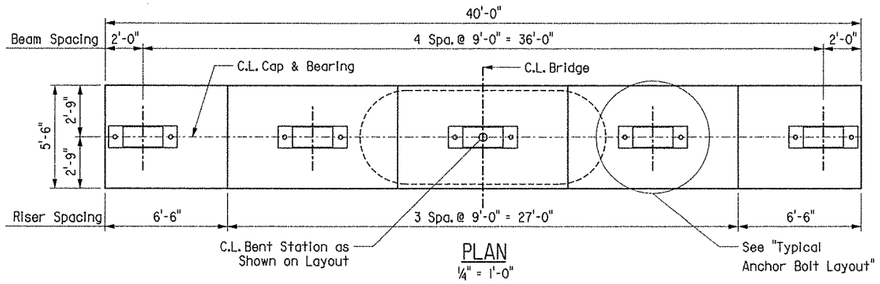
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

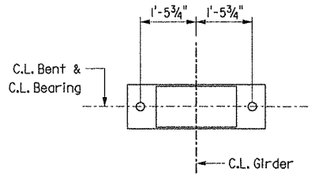
DRAWN BY: BEG DATE: 01-14 FILENAME: b070240_B62.dgn
CHECKED BY: LWM DATE: 03-07-14 SCALE: AS SHOWN
DESIGNED BY: BEG DATE: 01-14

BRIDGE NO. 07316 DRAWING NO. 55563

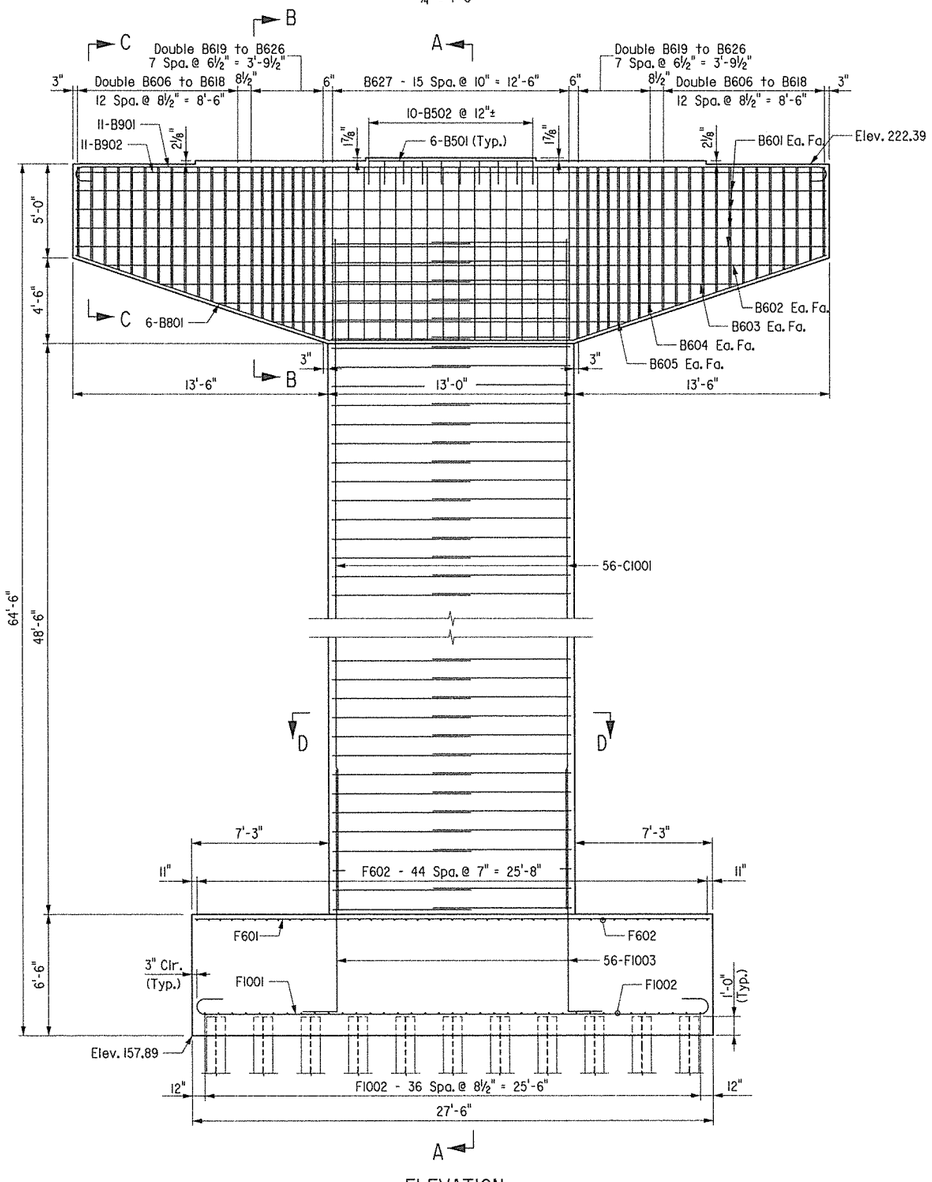
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	73	172
				(1) 07316		BENT 7 DETAILS		55564



PLAN
¼" = 1'-0"



TYPICAL ANCHOR BOLT LAYOUT
½" = 1'-0"



ELEVATION
¼" = 1'-0"
(Looking Ahead)

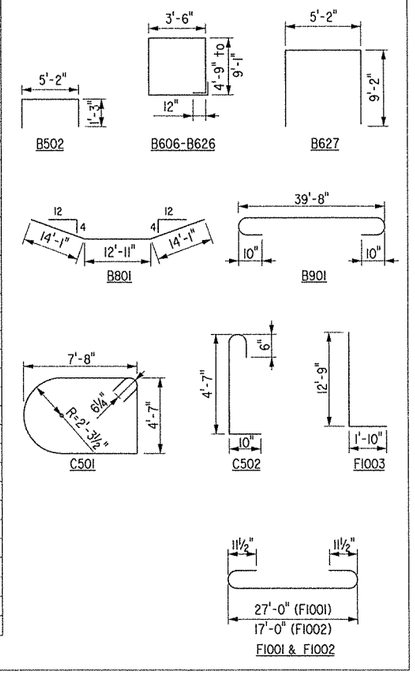
For sections and footing plan, see Dwg. No. 55565.

For substructure general notes, see Dwg. No. 55565.

BAR LIST - BENT 7

Mark	Number Required	Length	Pin Dia.
B501	6	8'-8"	Str.
B502	10	7'-6"	2½"
B601	8	39'-8"	Str.
B602	2	36'-7"	Str.
B603	2	30'-8"	Str.
B604	2	24'-9"	Str.
B605	2	18'-10"	Str.
B606 to B618	4 ea.	17'-8" to 23'-4"	4½"
B619 to B626	4 ea.	23'-10" to 26'-4"	4½"
B627	16	23'-2"	4½"
B801	6	41'-1"	6"
B901	11	42'-2"	9"
B902	11	39'-8"	Str.
C501	110	23'-3"	3¾"
C502	110	5'-11"	3¾"
C1001	56	53'-9"	Str.
F601	29	27'-0"	Str.
F602	45	17'-0"	Str.
F1001	28	29'-10"	10"
F1002	37	19'-10"	10"
F1003	56	14'-3"	10"

BENDING DIAGRAMS
(Dimensions are out to out of bars)



STATE OF ARKANSAS
Larry W. Miller
REGISTERED PROFESSIONAL ENGINEER
No. 11339
8/27/14
LARRY W. MILLER
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF BENT 7
OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

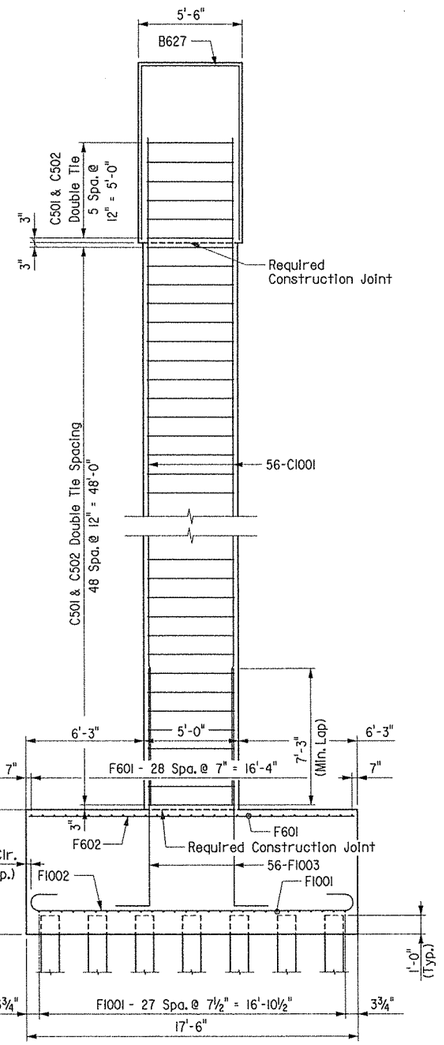
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

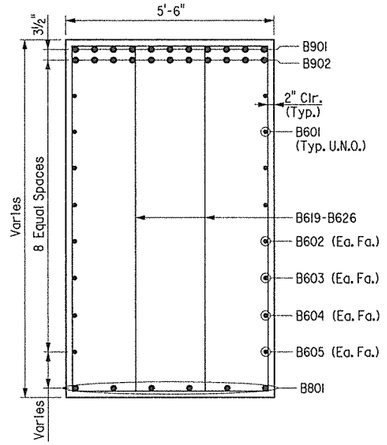
DRAWN BY: BEG DATE: 01-14 FILENAME: b070240_B71.dgn
CHECKED BY: LWM DATE: 03-07-14 SCALE: AS SHOWN
DESIGNED BY: BEG DATE: 01-14

BRIDGE NO. 07316 DRAWING NO. 55564

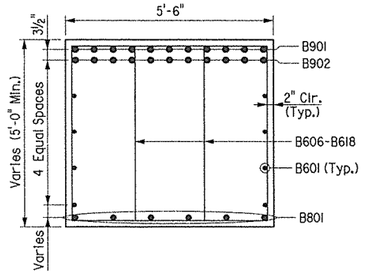
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	74	172
				(1) 07316		BENT 7 DETAILS		55565



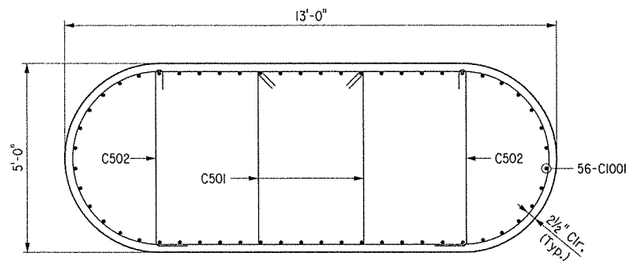
SECTION A-A
¼" = 1'-0"



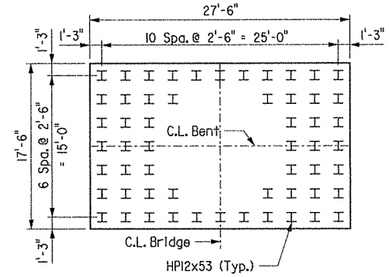
SECTION B-B
½" = 1'-0"



SECTION C-C
½" = 1'-0"



SECTION D-D
½" = 1'-0"



FOOTING PLAN
⅛" = 1'-0"

GENERAL NOTES

All Concrete shall be Class "S" with a minimum 28-day compressive strength f'c = 3500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted.

All reinforcing steel shall conform AASHTO M31 or M322 Type A, Grade 60 (yield strength = 60,000 psi)

Reinforcing bars in top of cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

For additional information, see layout.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11339
LARRY W. MILLER
8/29/14

BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF BENT 7
OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

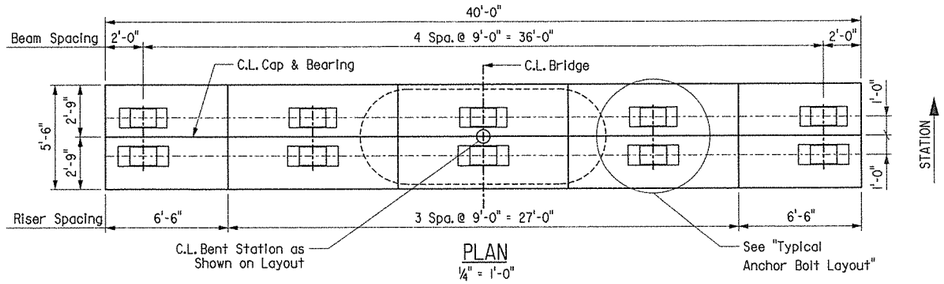
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

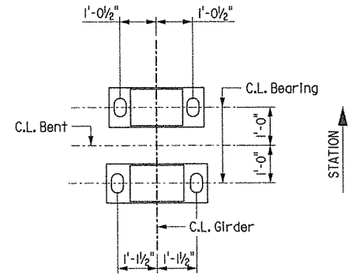
DRAWN BY: BEG DATE: 01-14 FILENAME: b070240_B72.dgn
CHECKED BY: LWM DATE: 03-07-14 SCALE: AS SHOWN
DESIGNED BY: BEG DATE: 01-14

BRIDGE NO. 07316 DRAWING NO. 55565

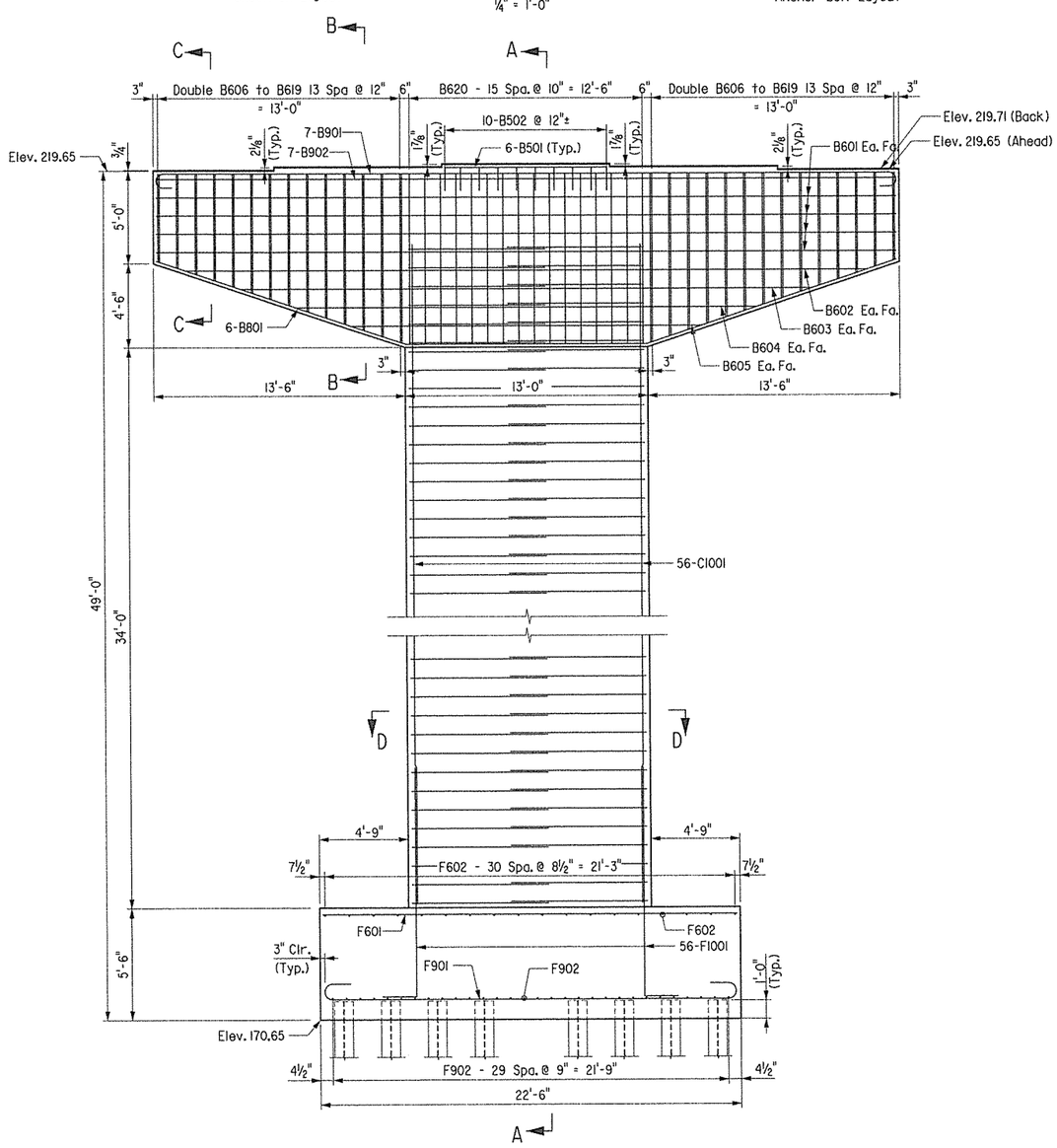
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	75	172
				(1) 07316		BENT 8 DETAILS		55566



PLAN
¼" = 1'-0"



TYPICAL ANCHOR BOLT LAYOUT
½" = 1'-0"

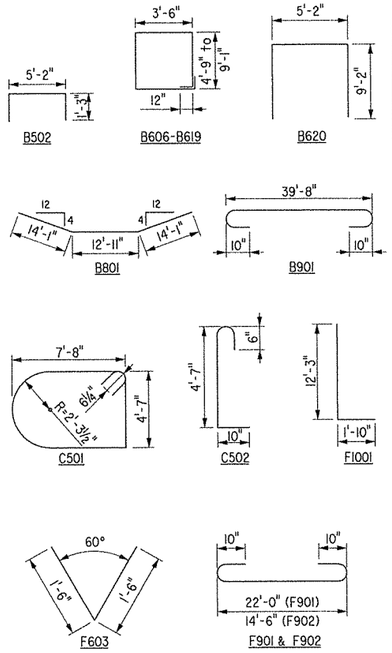


ELEVATION
¼" = 1'-0"
(Looking Ahead)

BAR LIST - BENT 8

Mark	Number Required	Length	Pin Dia.
B501	6	8'-8"	Str.
B502	10	7'-6"	2½"
B601	8	39'-8"	Str.
B602	2	36'-7"	Str.
B603	2	30'-8"	Str.
B604	2	24'-9"	Str.
B605	2	18'-10"	Str.
B606 to B619	4 ea.	17'-8" to 26'-4"	4½"
B620	16	23'-2"	4½"
B801	6	41'-1"	6"
B901	7	42'-2"	9"
B902	7	39'-8"	Str.
C501	82	23'-3"	3¾"
C502	82	5'-11"	3¾"
C1001	56	39'-3"	Str.
F601	22	22'-0"	Str.
F602	31	14'-6"	Str.
F603	80	2'-10"	4½"
F901	23	24'-6"	9"
F902	30	17'-0"	9"
F1001	56	13'-9"	10"

BENDING DIAGRAMS
(Dimensions are out to out of bars)



For sections and footing plan, see Dwg. No. 55567.

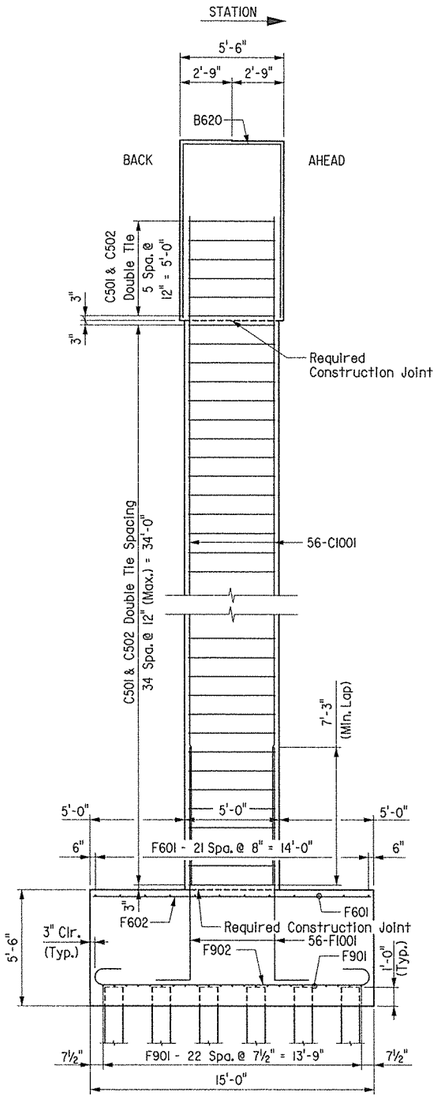
For substructure general notes, see Dwg. No. 55567.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13339
LARRY W. MILLER
5/27/14
BRIDGE ENGINEER

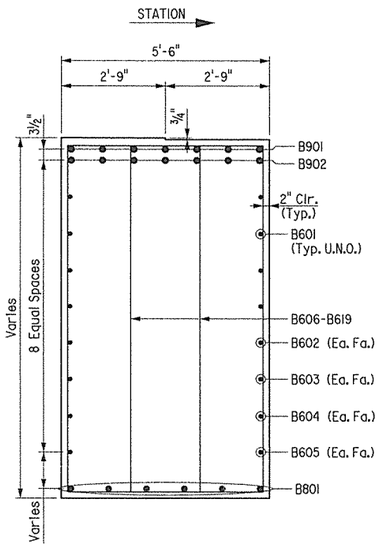
SHEET 1 OF 2
DETAILS OF BENT 8
OUACHITA RIVER BRIDGE
ROUTE 51 SEC. 2
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BEG DATE: 01-14 FILENAME: b070240_B8l.dgn
CHECKED BY: LWM DATE: 03-07-14 SCALE: AS SHOWN
DESIGNED BY: BEG DATE: 01-14
BRIDGE NO. 07316 DRAWING NO. 55566

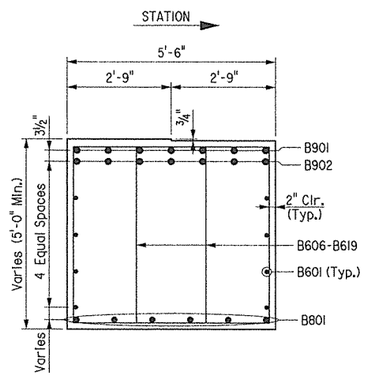
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	76	172
				(1) 07316		BENT 8 DETAILS		55567



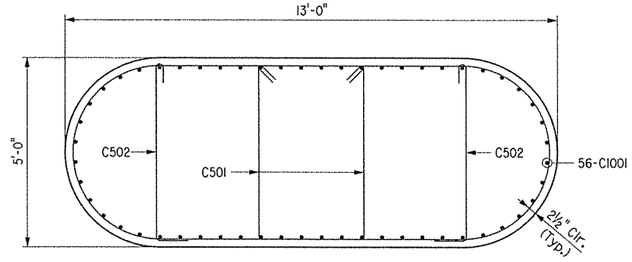
SECTION A-A
¼" = 1'-0"



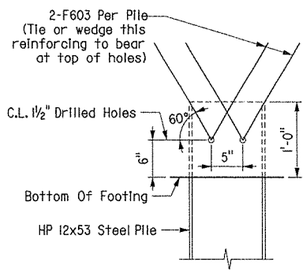
SECTION B-B
½" = 1'-0"



SECTION C-C
½" = 1'-0"

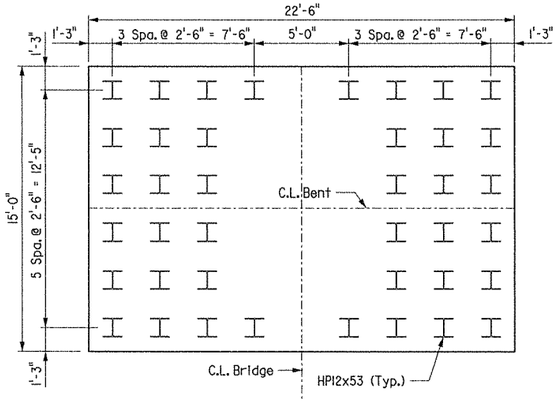


SECTION D-D
½" = 1'-0"



DETAIL AT PILE TOP
No Scale

Drilled holes will not be paid for directly but shall be considered incidental to the item "STEEL PILING (HP12x53)".



FOOTING PLAN
¼" = 1'-0"

GENERAL NOTES

All Concrete shall be Class "S" with a minimum 28-day compressive strength f'c = 3500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted.

All reinforcing steel shall conform AASHTO M31 or M322 Type A, Grade 60 (yield strength = 60,000 psi)

Reinforcing bars in top of cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

For additional information, see layout.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11339
LARRY W. MILLER
8/29/14

BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF BENT 8
OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

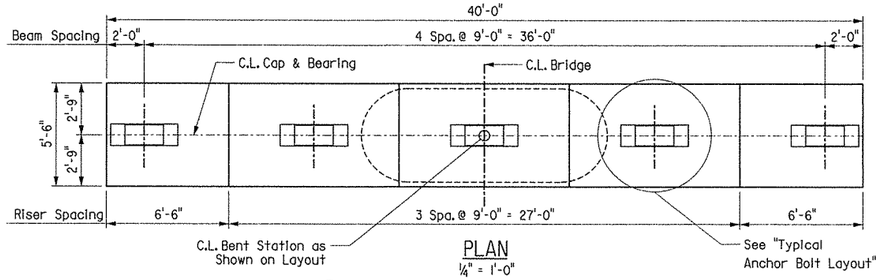
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

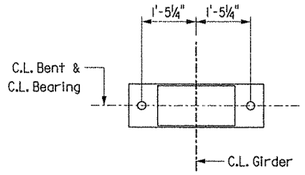
DRAWN BY: BEG DATE: 01-14 FILENAME: b070240_B82.dgn
CHECKED BY: LWM DATE: 03-07-14 SCALE: AS SHOWN
DESIGNED BY: BEG DATE: 01-14

BRIDGE NO. 07316 DRAWING NO. 55567

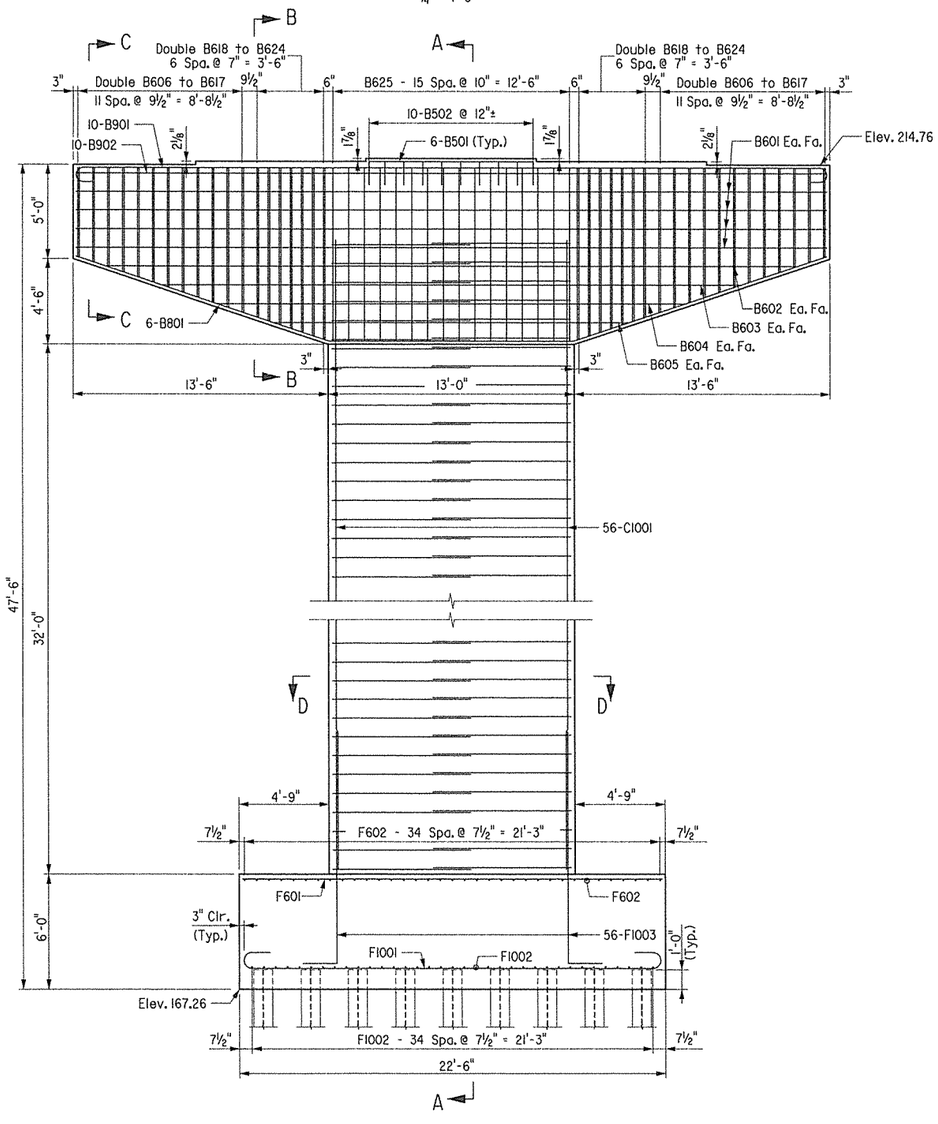
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	77	172
				(1) 07316		BENT 9 DETAILS		55568



PLAN
1/4" = 1'-0"



TYPICAL ANCHOR BOLT LAYOUT
½" = 1'-0"

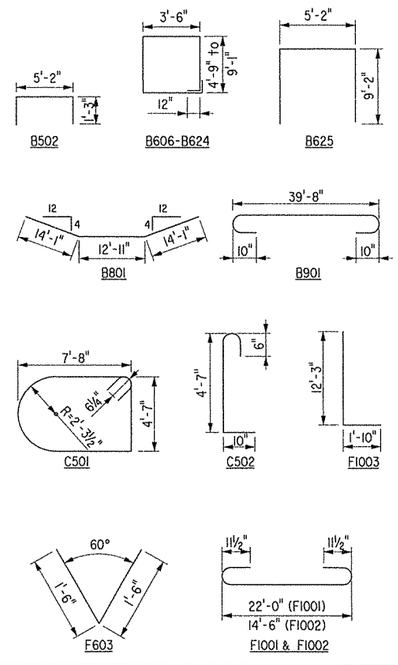


ELEVATION
¼" = 1'-0"
(Looking Ahead)

BAR LIST - BENT 9

Mark	Number Required	Length	Pin Dia.
B501	6	8'-8"	Str.
B502	10	7'-6"	2½"
B601	8	39'-8"	Str.
B602	2	36'-7"	Str.
B603	2	30'-8"	Str.
B604	2	24'-9"	Str.
B605	2	18'-10"	Str.
B606 to B617	4 ea.	17'-8" to 23'-6"	4½"
B618 to B624	4 ea.	24'-0" to 26'-4"	4½"
B625	16	23'-2"	4½"
B801	6	41'-1"	6"
B901	10	42'-2"	9"
B902	10	39'-8"	Str.
C501	78	23'-3"	3¾"
C502	78	5'-11"	3¾"
C1001	56	37'-3"	Str.
F601	23	22'-0"	Str.
F602	35	14'-6"	Str.
F603	60	2'-10"	4½"
F1001	23	24'-10"	10"
F1002	35	17'-4"	10"
F1003	56	13'-9"	10"

BENDING DIAGRAMS
(Dimensions are out to out of bars)



For sections and footing plan, see Dwg. No. 55569.

For substructure general notes, see Dwg. No. 55569.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11339
LARRY W. MILLER
6/24/14
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF BENT 9
OUACHITA RIVER BRIDGE

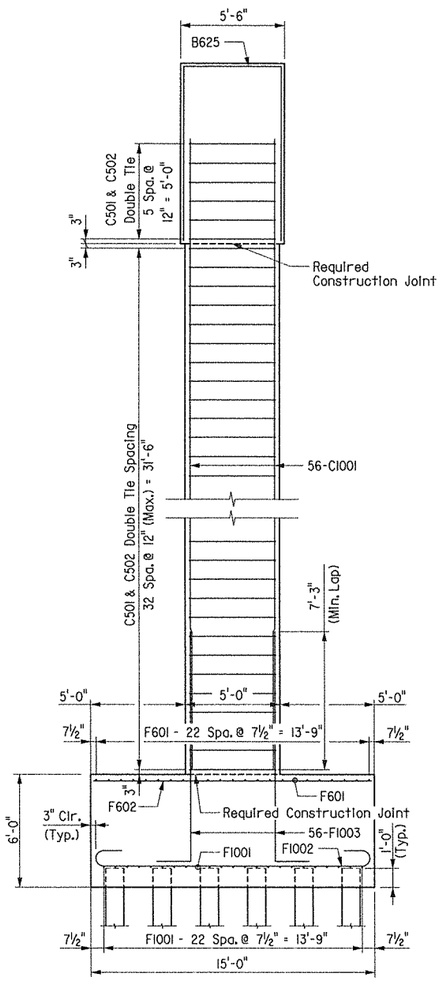
ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

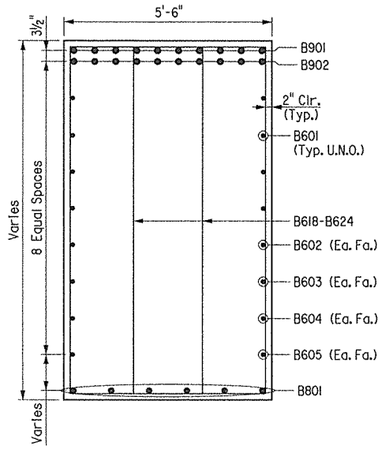
DRAWN BY: BEG DATE: 01-14 FILENAME: b070240_B91.dgn
CHECKED BY: LWM DATE: 03-07-14 SCALE: AS SHOWN
DESIGNED BY: BEG DATE: 01-14

BRIDGE NO. 07316 DRAWING NO. 55568

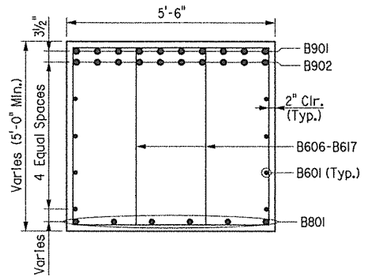
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	78	172
				(1) 07316		BENT 9 DETAILS		55569



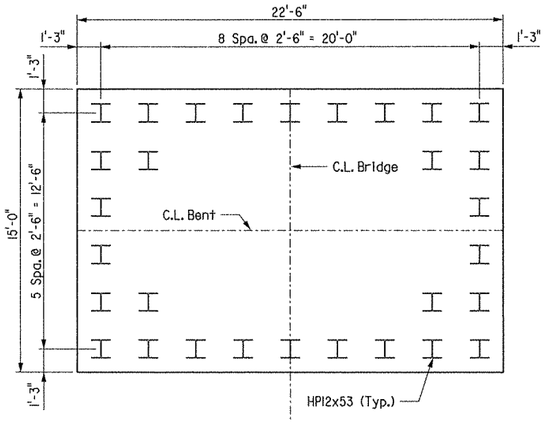
SECTION A-A
1/4" = 1'-0"



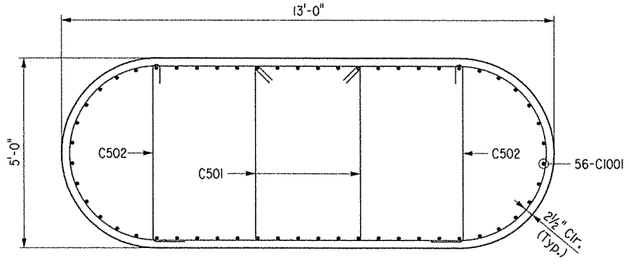
SECTION B-B
1/2" = 1'-0"



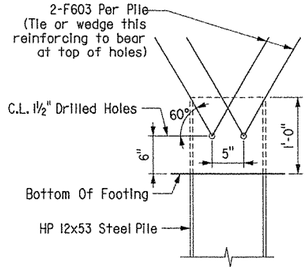
SECTION C-C
1/2" = 1'-0"



FOOTING PLAN
1/4" = 1'-0"



SECTION D-D
1/2" = 1'-0"



DETAIL AT PILE TOP
No Scale

Drilled holes will not be paid for directly but shall be considered incidental to the item "STEEL PILING (HP12x53)".

GENERAL NOTES

All Concrete shall be Class "S" with a minimum 28-day compressive strength f'c = 3500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted.

All reinforcing steel shall conform AASHTO M31 or M322 Type A, Grade 60 (yield strength = 60,000 psi)

Reinforcing bars in top of cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

For additional information, see layout.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11339
LARRY W. MILLER
8/29/14

BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF BENT 9
OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

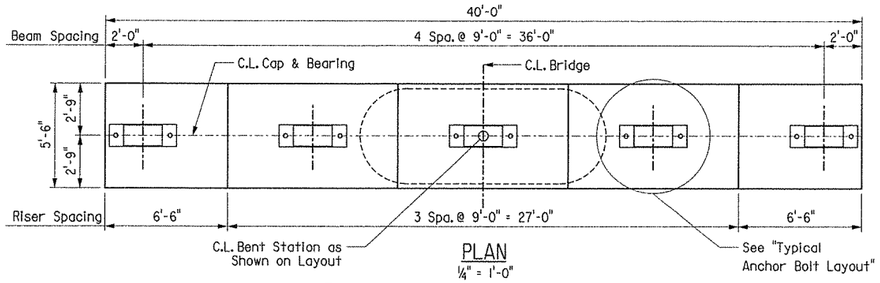
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

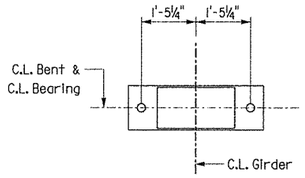
DRAWN BY: BEG DATE: 01-14 FILENAME: b070240_B92.dgn
CHECKED BY: LWM DATE: 03-07-14 SCALE: AS SHOWN
DESIGNED BY: BEG DATE: 01-14

BRIDGE NO. 07316 DRAWING NO. 55569

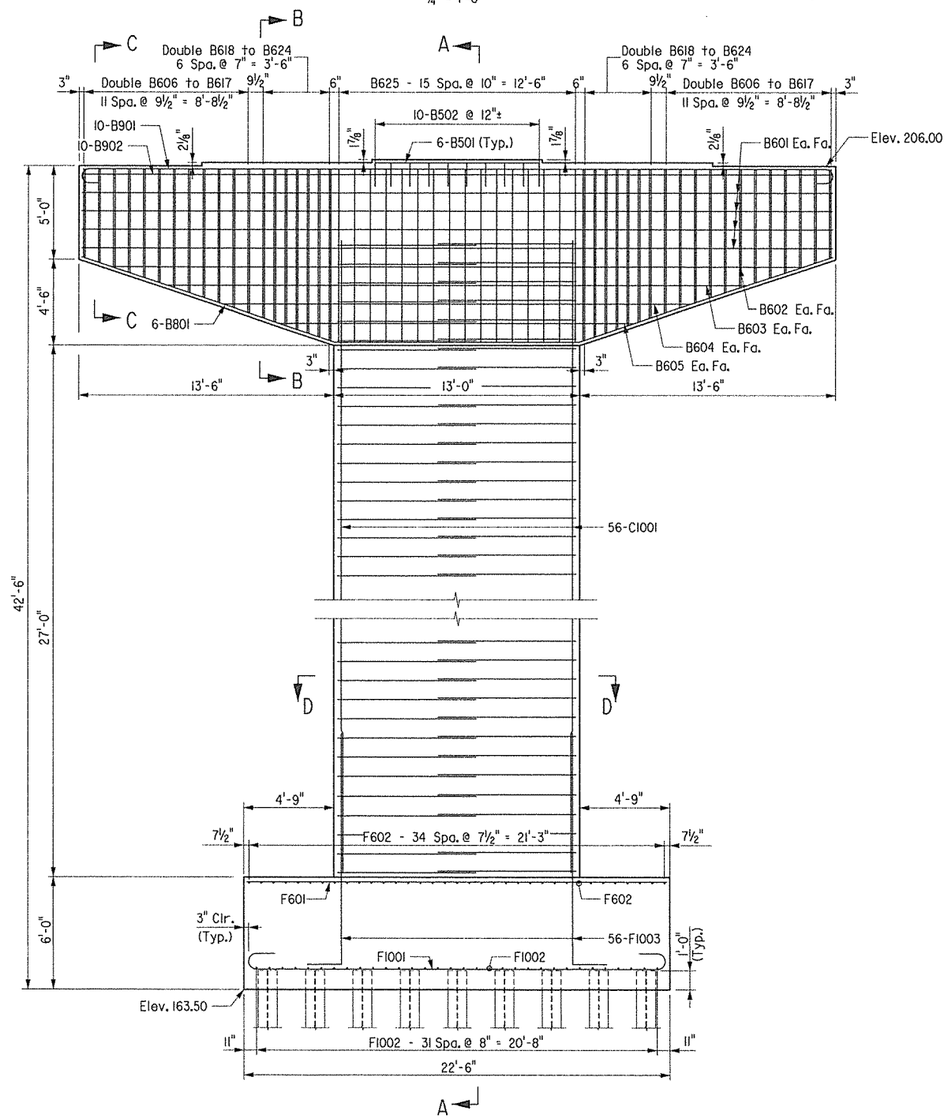
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	79	172
				(1) 07316		BENT 10 DETAILS		55570



PLAN
¼" = 1'-0"



TYPICAL ANCHOR BOLT LAYOUT
½" = 1'-0"

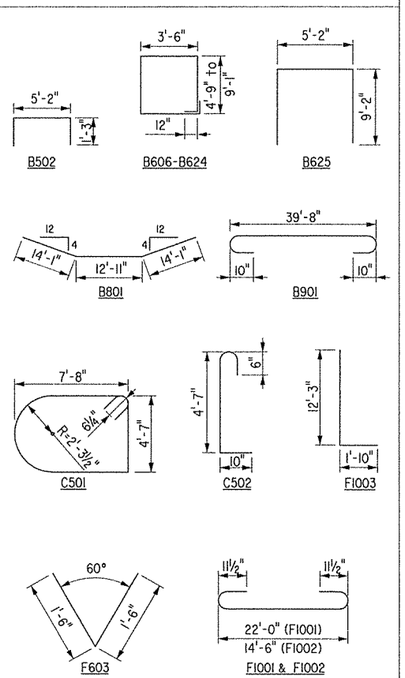


ELEVATION
¼" = 1'-0"
(Looking Ahead)

BAR LIST - BENT 10

Mark	Number Required	Length	Pin Dia.
B501	6	8'-8"	Str.
B502	10	7'-6"	2½"
B601	8	39'-8"	Str.
B602	2	36'-7"	Str.
B603	2	30'-8"	Str.
B604	2	24'-9"	Str.
B605	2	18'-10"	Str.
B606 to B617	4 ea.	17'-8" to 23'-6"	4½"
B618 to B624	4 ea.	24'-0" to 26'-4"	4½"
B625	16	23'-2"	4½"
B801	6	41'-1"	6"
B901	10	42'-2"	9"
B902	10	39'-8"	Str.
C501	68	23'-3"	3¾"
C502	68	5'-11"	3¾"
C1001	56	32'-3"	Str.
F601	23	22'-0"	Str.
F602	35	14'-6"	Str.
F603	64	2'-10"	4½"
F1001	23	24'-10"	10"
F1002	32	17'-4"	10"
F1003	56	13'-9"	10"

BENDING DIAGRAMS
(Dimensions are out to out of bars)



For sections and footing plan, see Dwg. No. 55571.

For substructure general notes, see Dwg. No. 55571.

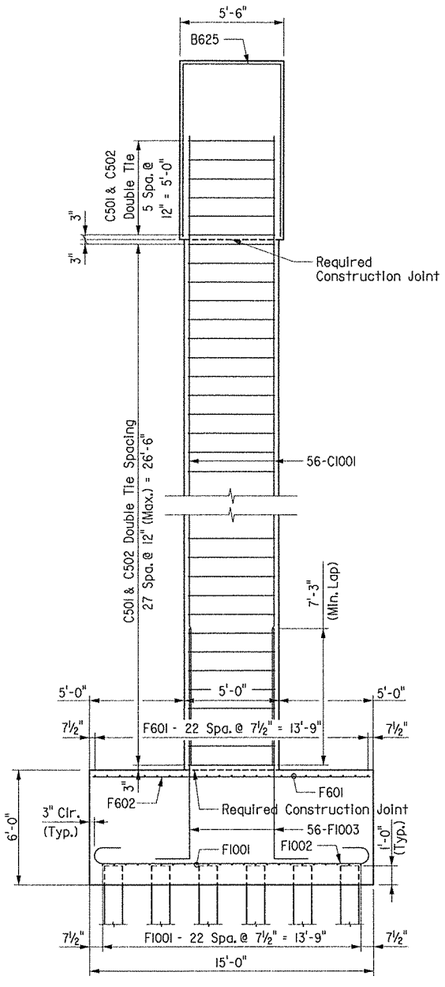
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11339
LARRY W. MILLER
8/27/14
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF BENT 10
OUACHITA RIVER BRIDGE
ROUTE 51 SEC. 2
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

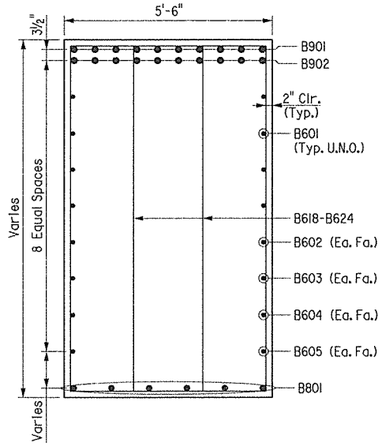
DRAWN BY: BEG DATE: 01-14
CHECKED BY: LWM DATE: 03-07-14
DESIGNED BY: BEG DATE: 01-14
FILENAME: b070240_B101.dgn
SCALE: AS SHOWN

BRIDGE NO. 07316 DRAWING NO. 55570

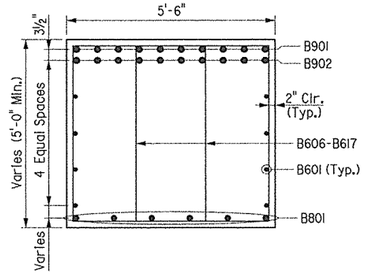
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	80	172
				(1) 07316		BENT 10 DETAILS		55571



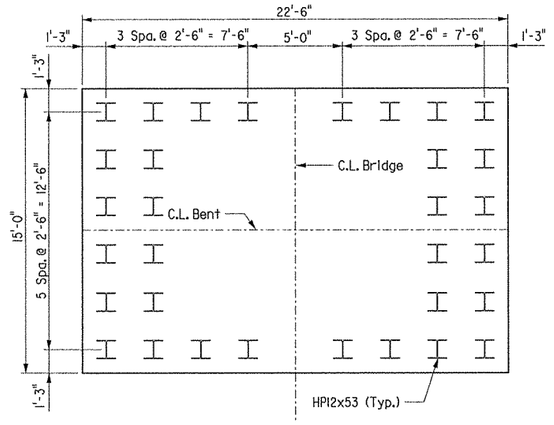
SECTION A-A
¼" = 1'-0"



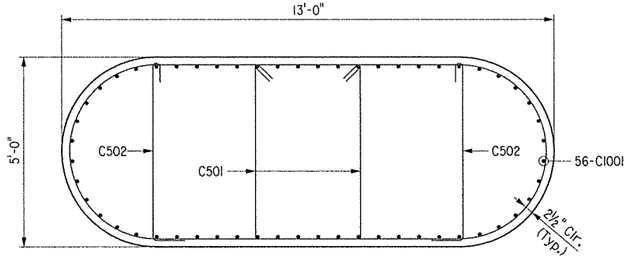
SECTION B-B
½" = 1'-0"



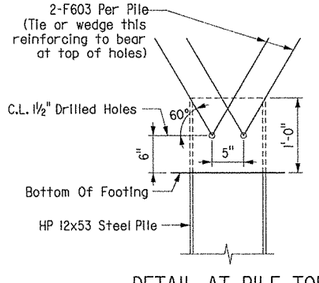
SECTION C-C
½" = 1'-0"



FOOTING PLAN
¼" = 1'-0"



SECTION D-D
½" = 1'-0"



DETAIL AT PILE TOP
No Scale

Drilled holes will not be paid for directly but shall be considered incidental to the item "STEEL PILING (HP12x53)".

GENERAL NOTES

All Concrete shall be Class "S" with a minimum 28-day compressive strength f'c = 3500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted.

All reinforcing steel shall conform AASHTO M31 or M322 Type A, Grade 60 (yield strength = 60,000 psi)

Reinforcing bars in top of cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

For additional information, see layout.

STATE OF ARKANSAS
LARRY W. MILLER
REGISTERED PROFESSIONAL ENGINEER
No. 11339
8/29/14
BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF BENT 10
OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BEG DATE: 01-14
CHECKED BY: LWM DATE: 03-07-14
DESIGNED BY: BEG DATE: 01-14

FILENAME: b070240_B102.dgn
SCALE: AS SHOWN

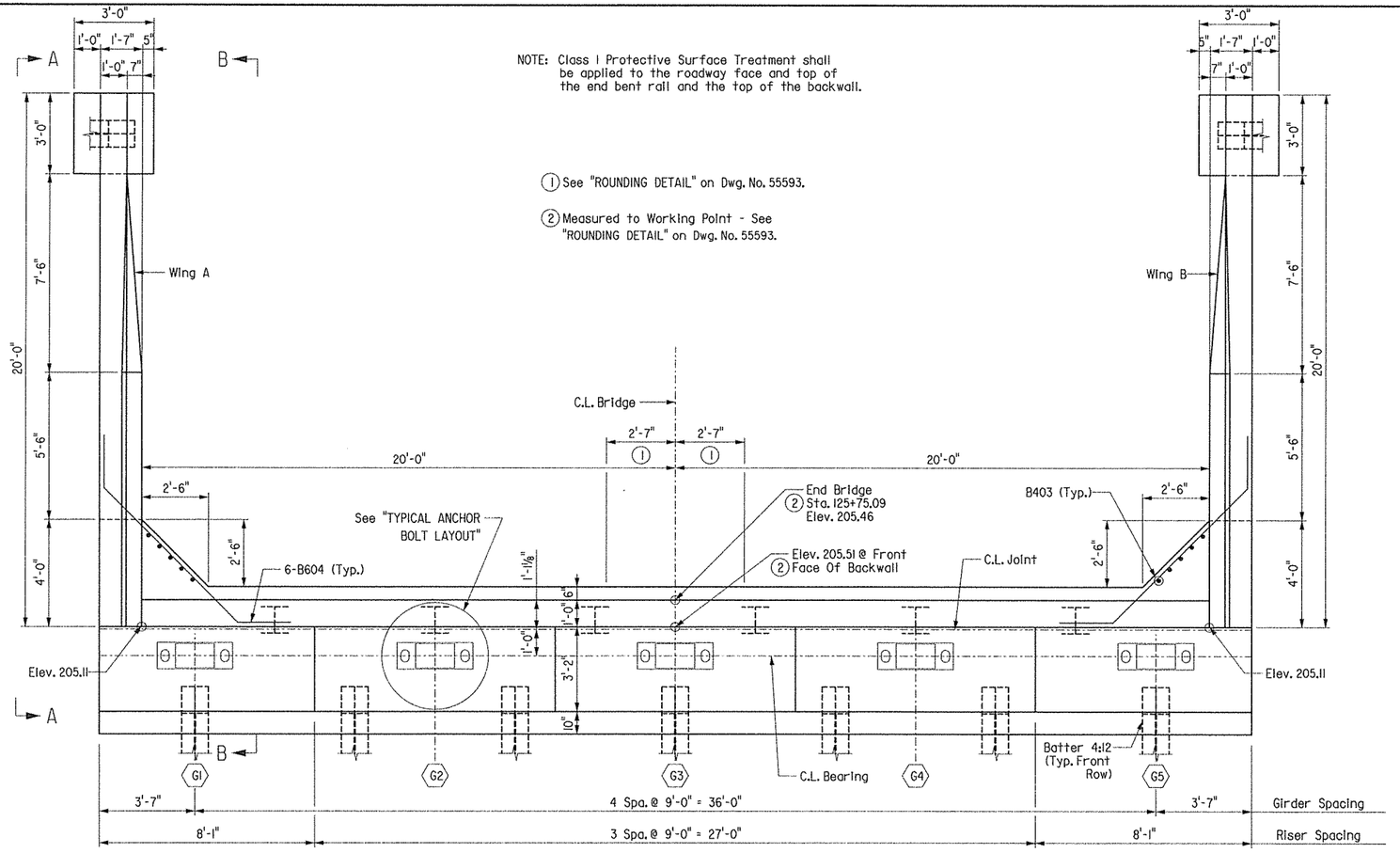
BRIDGE NO. 07316 DRAWING NO. 55571

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	81	172
				(1) 07316		END BENTS		55572

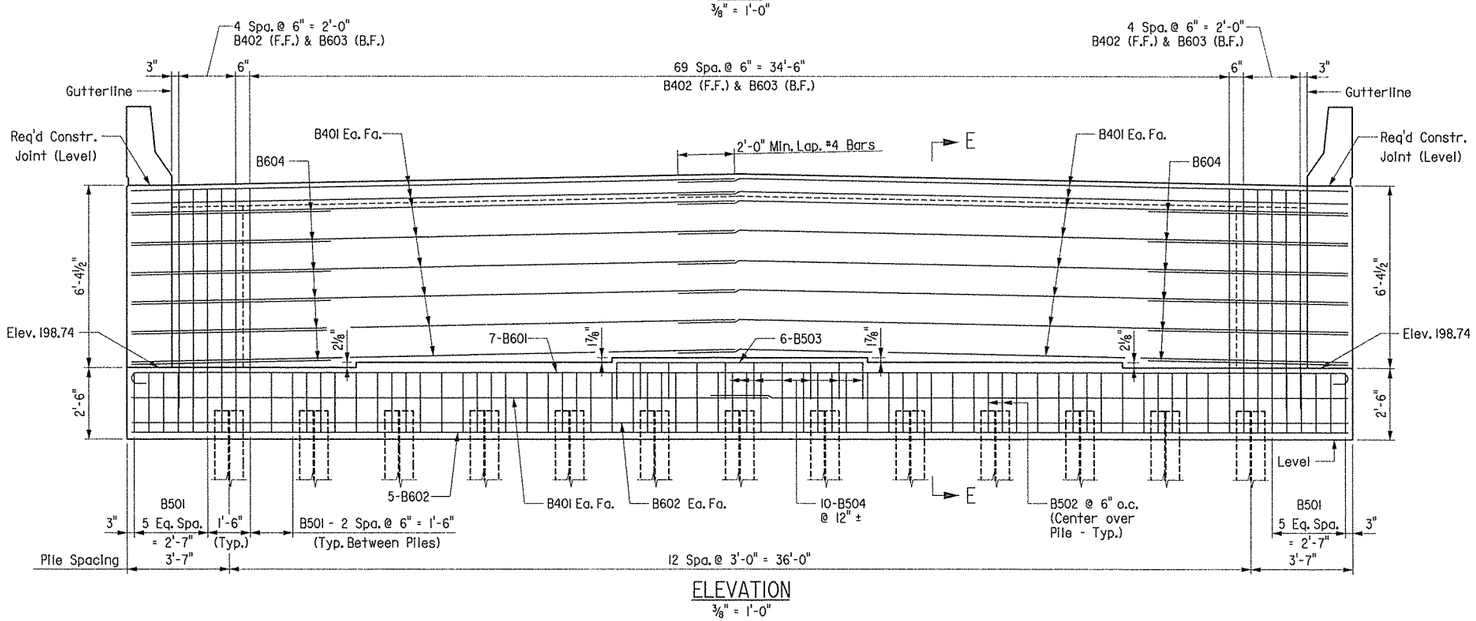
NOTE: Class 1 Protective Surface Treatment shall be applied to the roadway face and top of the end bent rail and the top of the backwall.

(1) See "ROUNDING DETAIL" on Dwg. No. 55593.

(2) Measured to Working Point - See "ROUNDING DETAIL" on Dwg. No. 55593.



PLAN
⅜" = 1'-0"



ELEVATION
⅜" = 1'-0"

The Contractor shall complete the embankment construction and monitor the settlement of the foundation soils for a minimum of 45 days prior to driving piling at Bent 11. The Engineer shall determine when pile driving may begin. Monitoring for settlement shall be accomplished in a manner acceptable to the Engineer and no direct payment will be made for this work.

For SECTION E-E, see Dwg. No. 55573.

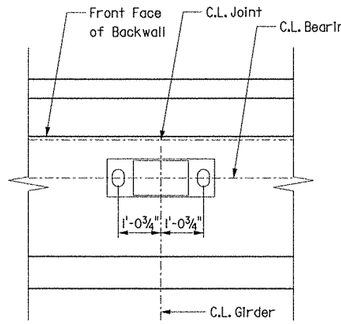
For VIEW A-A and VIEW B-B, see Dwg. Nos. 55573.

For additional information, see LAYOUT on Dwg. No. 55542-55544.

For Details of Wing and Rail, see Dwg. No. 55573 & 55574.

For Bar List, see Dwg. No. 55574.

For Substructure General Notes, see Dwg. No. 55550.



TYPICAL ANCHOR BOLT LAYOUT
½" = 1'-0"

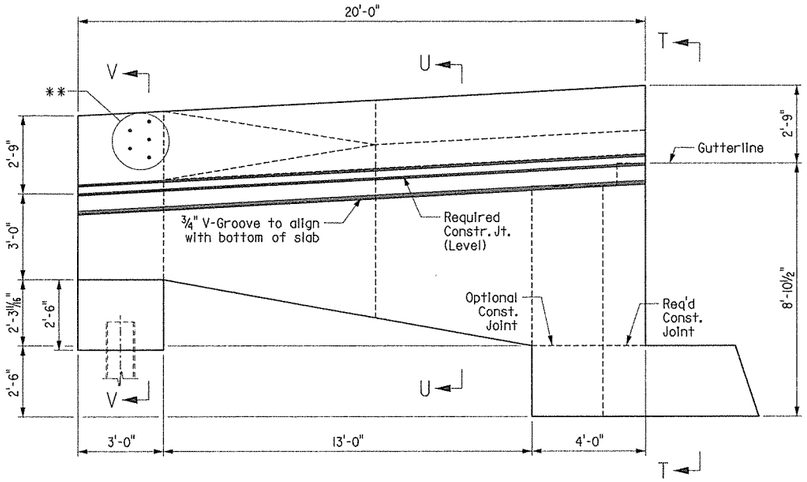
STATE OF ARKANSAS
Larry W. Miller
REGISTERED PROFESSIONAL ENGINEER
No. 11339
8/20/14
LARRY W. MILLER
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF BENT 11
OUACHITA RIVER BRIDGE
ROUTE 51 SEC. 2
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

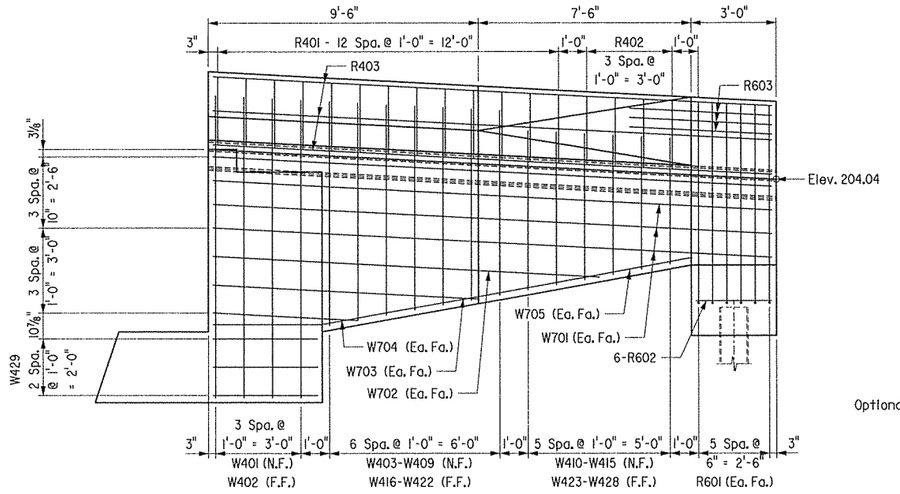
DRAWN BY: BEG DATE: 01-14
CHECKED BY: LWM DATE: 03-07-14
DESIGNED BY: BEG DATE: 01-14
FILENAME: b070240 BIII.dgn
SCALE: AS SHOWN

BRIDGE NO. 07316 DRAWING NO. 55572

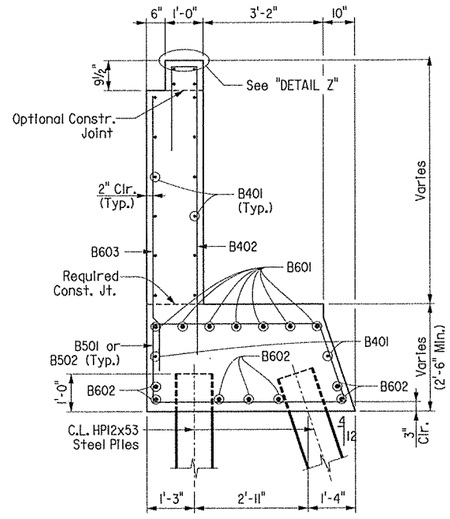
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	82	172
				(1) 07316		END BENTS		55573



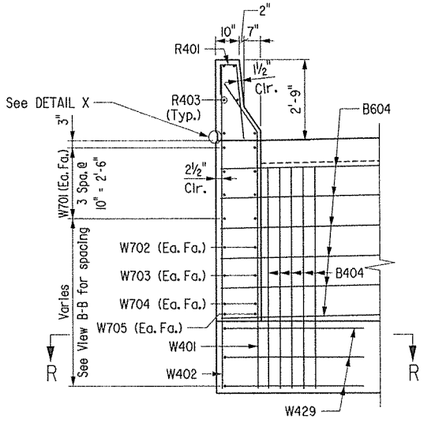
VIEW A-A
3/8" = 1'-0"
(Wing A Shown, Wing B is opposite hand)



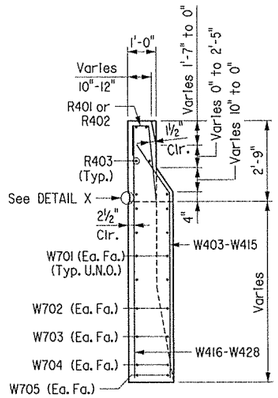
VIEW B-B
3/8" = 1'-0"
(Wing A Shown, Wing B is opposite hand)



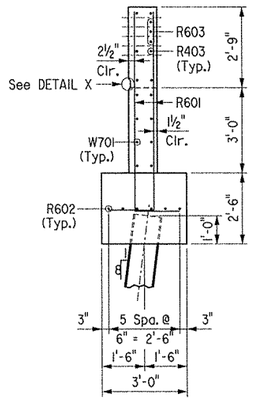
SECTION E-E
1/2" = 1'-0"



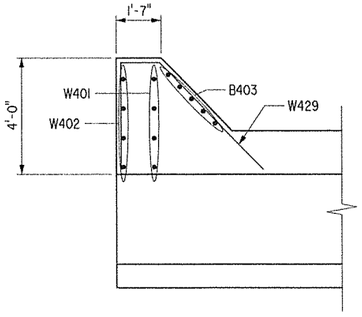
SECTION T-T
3/8" = 1'-0"



SECTION U-U
3/8" = 1'-0"



SECTION V-V
3/8" = 1'-0"



SECTION R-R
3/8" = 1'-0"

For GENERAL NOTES FOR SUBSTRUCTURE, see Dwg. No. 55572.

For additional information, see LAYOUT on Dwg. No. 55542-55544.

For Bar List and additional details, see Dwg. No. 55574.

**5 - 1"ø formed holes for guard rail connection. See Std. Dwg. No. GR-10 for bolt spacing and additional connection details.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11339
8/29/14
LARRY W. MILLER

BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF BENT II
OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: BEG DATE: 01-14 FILENAME: b070240_BII2.dgn
CHECKED BY: LWM DATE: 03-07-14 SCALE: AS SHOWN
DESIGNED BY: BEG DATE: 01-14

BRIDGE NO. 07316 DRAWING NO. 55573

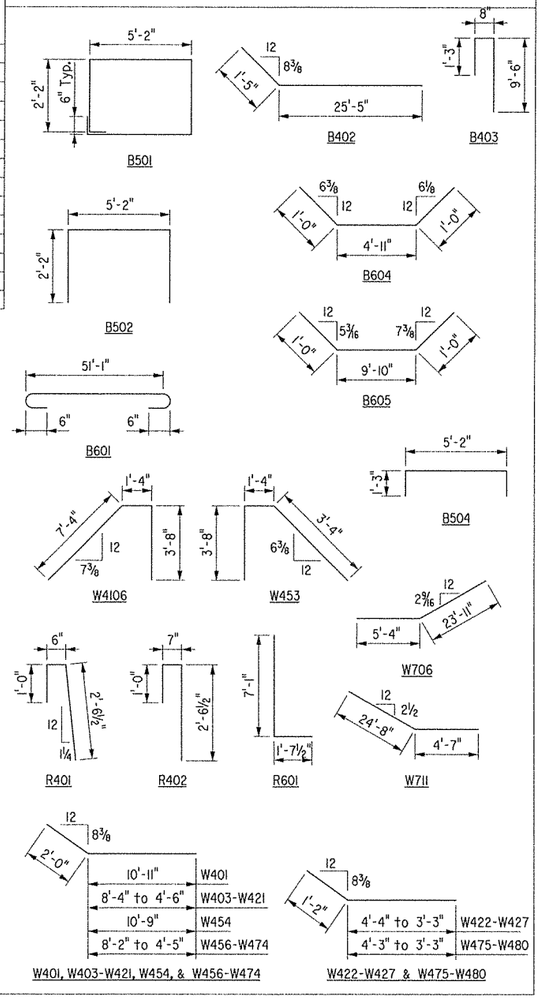
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	83	172
				(1) 07316		END BENTS		55574

BAR LIST - BENT I

Mark	No. Req'd	Length	Pin Dia.
B401	8	26'-7"	Str.
B402	40	26'-11"	2"
B403	99	11'-3"	2"
B404	9	9'-7"	Str.
B501	70	15'-2"	2½"
B502	18	9'-4"	2½"
B503	6	10'-8"	Str.
B504	12	7'-6"	2½"
B601	7	52'-5"	4½"
B602	7	51'-1"	Str.
B603	99	8'-9"	Str.
B604	8	6'-11"	4½"
B605	8	11'-10"	4½"
R401	50	3'-11"	2"
R402	8	4'-0"	2"
R403	12	31'-8"	Str.
R601	24	8'-7"	4½"
R602	12	2'-8"	Str.
R603	6	5'-0"	Str.
W401	4	12'-11"	2"
W402	4	13'-3"	Str.
W403 to W421	1 ea.	10'-4" to 6'-6"	2"
W422 to W427	1 ea.	5'-6" to 4'-5"	2"
W428 to W446	1 ea.	10'-8" to 6'-10"	Str.
W447 to W452	1 ea.	6'-8" to 5'-7"	Str.
W453	3	8'-3"	2"
W454	4	12'-9"	2"
W455	4	13'-1"	Str.
W456 to W474	1 ea.	10'-2" to 6'-6"	2"
W475 to W480	1 ea.	5'-5" to 4'-5"	2"
W481 to W499	1 ea.	10'-6" to 6'-9"	Str.

Mark	No. Req'd	Length	Pin Dia.
W4100 to W4105	1 ea.	6'-7" to 5'-7"	Str.
W4106	3	12'-3"	2"
W701	16	31'-8"	Str.
W702	2	24'-7"	Str.
W703	2	19'-10"	Str.
W704	2	15'-2"	Str.
W705	2	10'-5"	Str.
W706	2	29'-3"	5¼"
W707	2	24'-5"	Str.
W708	2	19'-7"	Str.
W709	2	14'-9"	Str.
W710	2	9'-10"	Str.
W711	2	29'-3"	5¼"

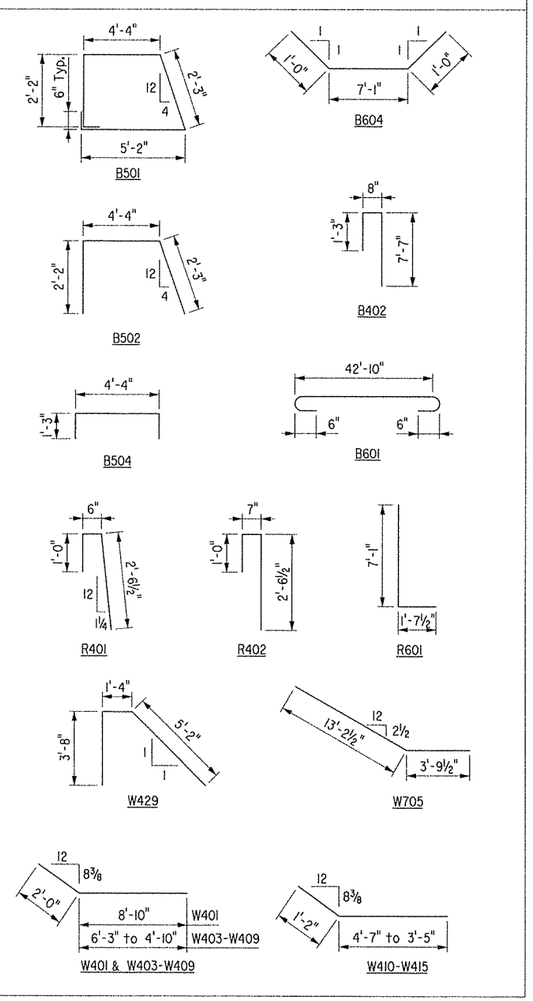
BENDING DIAGRAMS
(Dimensions are out to out of bars)

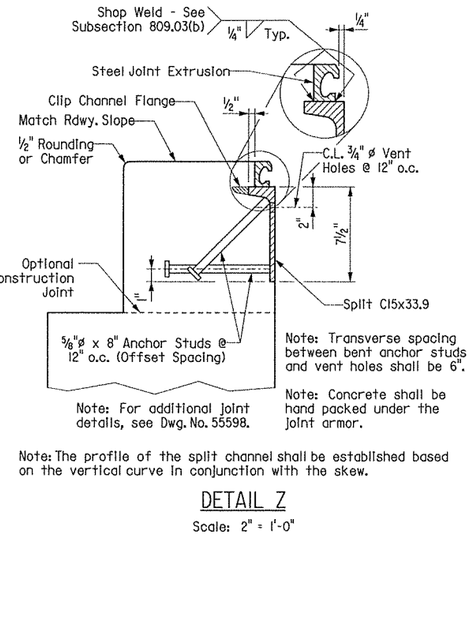


BAR LIST - BENT II

Mark	No. Req'd	Length	Pin Dia.
B401	36	22'-5"	Str.
B402	80	9'-4"	2"
B403	10	7'-9"	Str.
B501	48	14'-5"	2½"
B502	26	8'-9"	2½"
B503	6	8'-8"	Str.
B504	10	6'-8"	2½"
B601	7	44'-2"	4½"
B602	7	42'-10"	Str.
B603	80	6'-10"	Str.
B604	12	9'-1"	4½"
R401	26	3'-11"	2"
R402	8	4'-0"	2"
R403	12	19'-8"	Str.
R601	24	8'-7"	4½"
R602	12	2'-8"	Str.
R603	6	5'-0"	Str.
W401	8	10'-10"	2"
W402	8	11'-2"	Str.
W403 to W409	2 ea.	8'-3" to 6'-10"	2"
W410 to W415	2 ea.	5'-9" to 4'-7"	2"
W416 to W422	2 ea.	8'-8" to 7'-3"	Str.
W423 to W428	2 ea.	7'-0" to 5'-9"	Str.
W429	6	10'-1"	2"
W701	8	19'-8"	Str.
W702	4	13'-9"	Str.
W703	4	9'-8"	Str.
W704	4	5'-8"	Str.
W705	4	17'-0"	5¼"

BENDING DIAGRAMS
(Dimensions are out to out of bars)





Note: Transverse spacing between bent anchor studs and vent holes shall be 6".

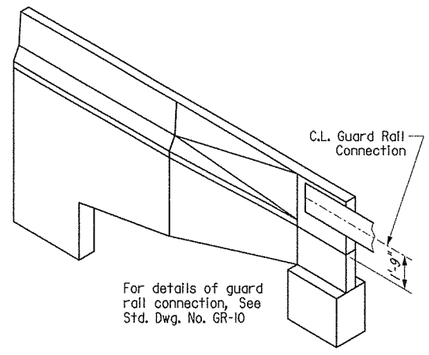
Note: Concrete shall be hand packed under the joint armor.

Note: For additional joint details, see Dwg. No. 55598.

Note: The profile of the split channel shall be established based on the vertical curve in conjunction with the skew.

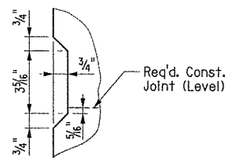
DETAIL Z

Scale: 2" = 1'-0"



THREE DIMENSIONAL VIEW OF WING & RAIL

Scale: ¼" = 1'-0"



DETAIL X

Scale: 3" = 1'-0"

For GENERAL NOTES FOR SUBSTRUCTURE, see Dwg. No. 55572.

For additional information, see LAYOUT on Dwg. No. 55542-55544.

STATE OF ARKANSAS
LARRY W. MILLER
REGISTERED PROFESSIONAL ENGINEER
No. 11339
8/29/14

BRIDGE ENGINEER

COMMON DETAILS OF END BENTS OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION

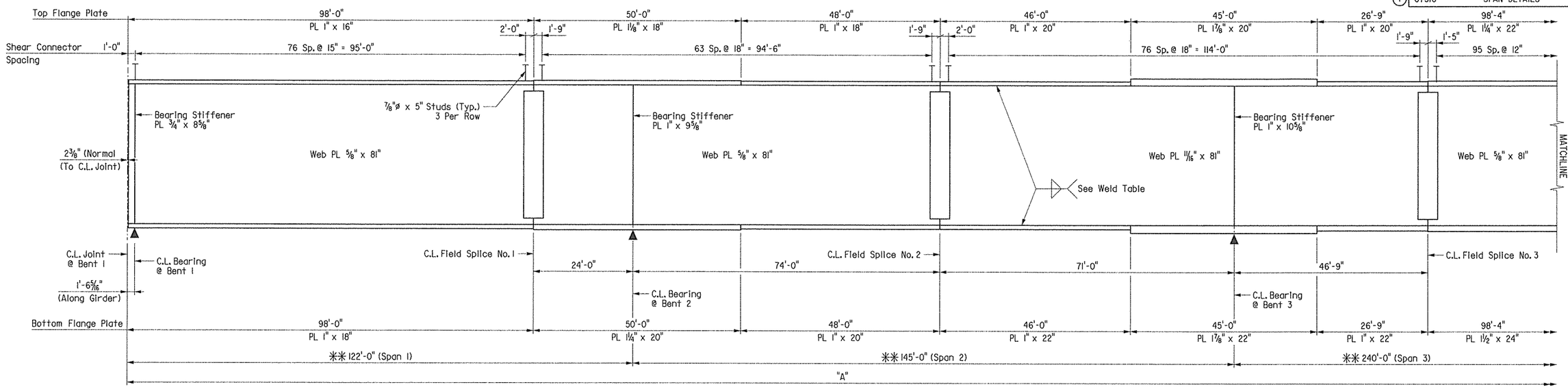
LITTLE ROCK, ARK.

DRAWN BY: BEG DATE: 01-14
CHECKED BY: LWM DATE: 03-07-14
DESIGNED BY: BEG DATE: 01-14

FILENAME: b070240_BII3.dgn
SCALE: AS SHOWN

BRIDGE NO. 07316 DRAWING NO. 55574

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	84	172
				(1) 07316		SPAN DETAILS		55575

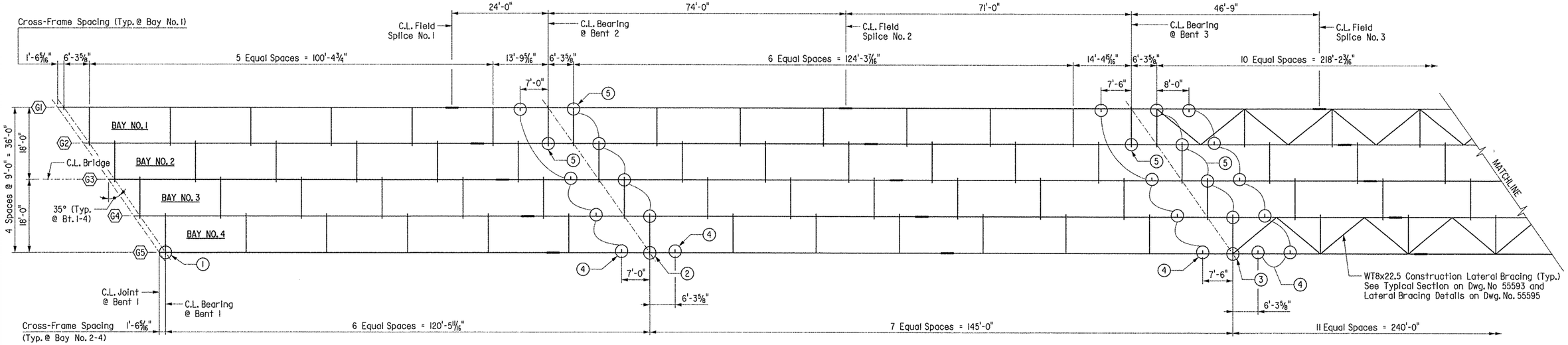


** Note: Measured at C.L. Bridge.

PART GIRDER ELEVATION

No Scale

Note: For dimension "A", see "TABLE OF VARIABLES" on Dwg. No. 55576.



PART FRAMING PLAN

No Scale

(1) PL 3/4" x 8 5/8" Bearing Stiffeners (Typ. @ Bt. 1)
(2) PL 1" x 9 5/8" Bearing Stiffeners (Typ. @ Bt. 2)
(3) PL 1" x 10 5/8" Bearing Stiffeners (Typ. @ Bt. 3)
(4) PL 5/8" x 7 1/2" Intermediate Stiffeners (Typ.)
(5) Cross-frame Connection Plates also serving as Intermediate Stiffeners.

NOTES

Bolted field splices shown may be eliminated or shop welded splices may be substituted with approval of the Engineer. Payment will be made on the basis of the plan quantities.

All plates are AASHTO M270 Grade 50W.

For additional information, see Drawing Nos. 55578-55579 & 55593-55595.

STATE OF ARKANSAS
LARRY W. MILLER
REGISTERED PROFESSIONAL ENGINEER
No. 11339
8/29/14
BRIDGE ENGINEER

SHEET 1 OF 9
DETAILS OF 690'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION

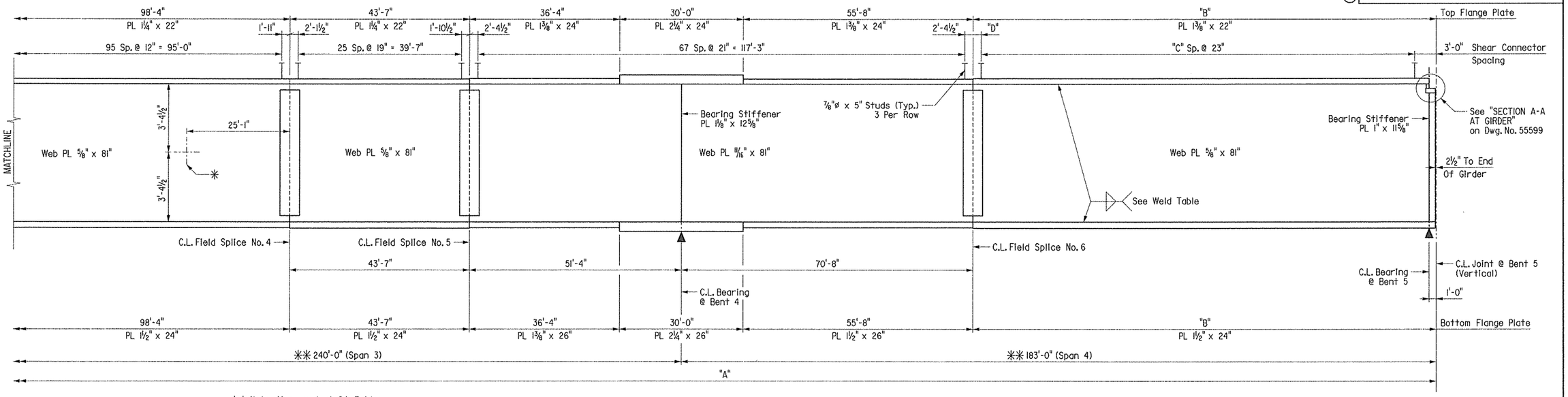
LITTLE ROCK, ARK.

DRAWN BY: DLM DATE: 02-14
CHECKED BY: LWM DATE: 03-07-14
DESIGNED BY: DLM DATE: 01-14
FILENAME: b070240_SII.dgn
SCALE: NONE

BRIDGE NO. 07316 DRAWING NO. 55575

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	9S	172

(1) 07316 SPAN DETAILS 55576

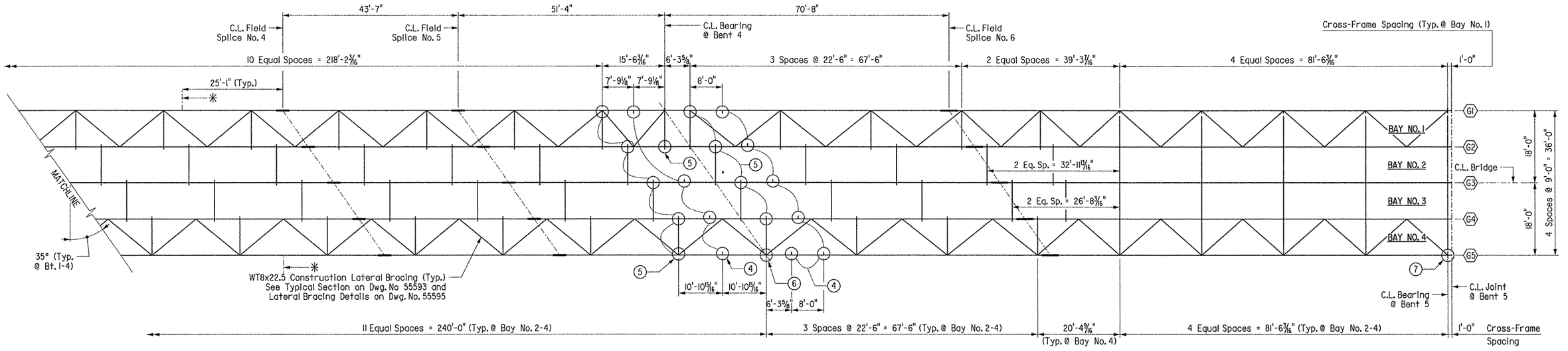


** Note: Measured at C.L. Bridge.

* C.L. holes for reflective panel. Exterior girders only. See Dwg. No. 55597.

PART GIRDER ELEVATION

No Scale



PART FRAMING PLAN

No Scale

NOTES

Bolted field splices shown may be eliminated or shop welded splices may be substituted with approval of the Engineer. Payment will be made on the basis of the plan quantities.

All plates are AASHTO M270 Grade 50W.

For additional information, see Drawing Nos. 55578-55579 & 55593-55595.

(4) PL ⅝" x 7½" Intermediate Stiffeners (Typ.)

(5) Cross-frame Connection Plates also serving as Intermediate Stiffeners.

(6) PL 1⅛" x 12⅝" Bearing Stiffeners (Typ. @ Bt. 4)

(7) PL 1" x 11⅝" Bearing Stiffeners (Typ. @ Bt. 5)

TABLE OF VARIABLES

GIRDER NUMBER	"A"	"B"	"C"	"D"
G1	702'-7¼"	124'-11¼"	60	1'-11¼"
G2	696'-3⅝"	118'-7⅝"	59	2'-6⅝"
G3	690'-0"	112'-4"	56	2'-0"
G4	683'-8⅜"	106'-0⅜"	52	3'-4⅜"
G5	677'-4¾"	99'-8¾"	49	2'-9¾"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11339
LARRY W. MILLER
8/29/14

BRIDGE ENGINEER

SHEET 2 OF 9
DETAILS OF 690'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: DLM DATE: 02-14 FILENAME: b070240_S12.dgn

CHECKED BY: LWM DATE: 03-07-14 SCALE: NONE

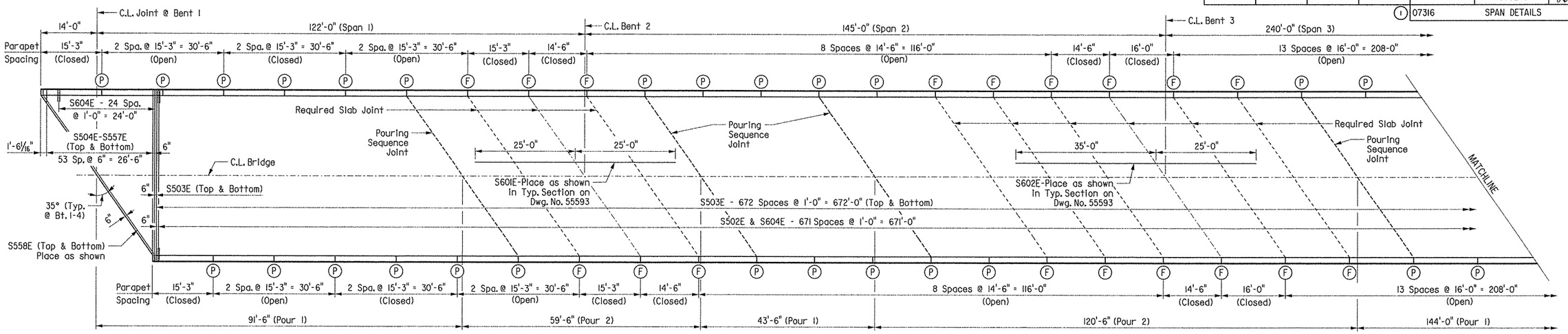
DESIGNED BY: DLM DATE: 01-14

BRIDGE NO. 07316 DRAWING NO. 55576

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	8b	172
				(1) 07316		SPAN DETAILS		55577

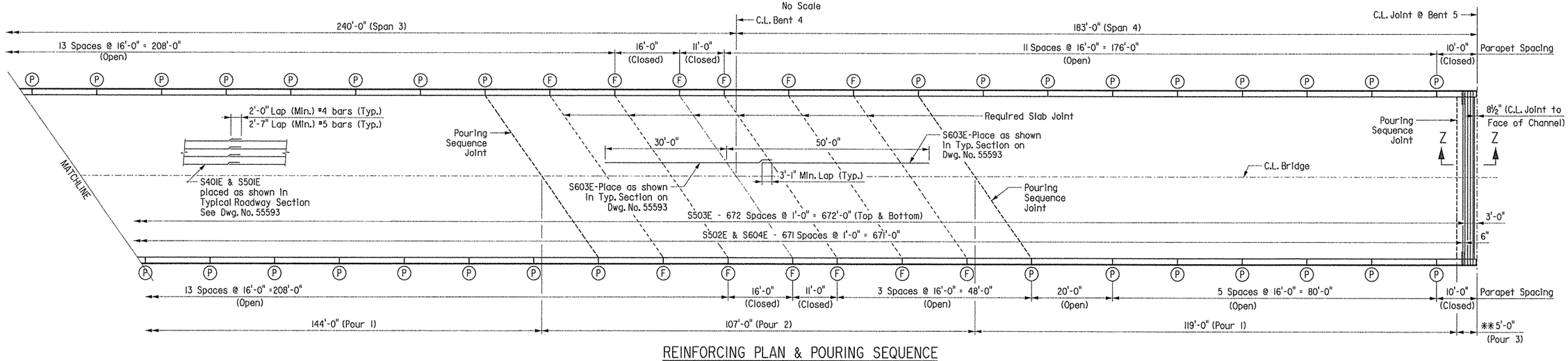
(P) C.L. Partial Depth Parapet Joint (¼" to 1" max.). Stop 1'-2" from top of slab.

(F) C.L. Full Depth Parapet Joint (¼" to 1" max.). Stop 4" from top of slab.



REINFORCING PLAN & POURING SEQUENCE

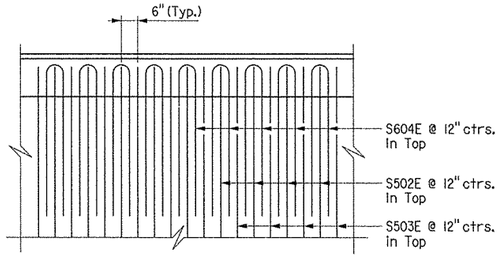
No Scale



REINFORCING PLAN & POURING SEQUENCE

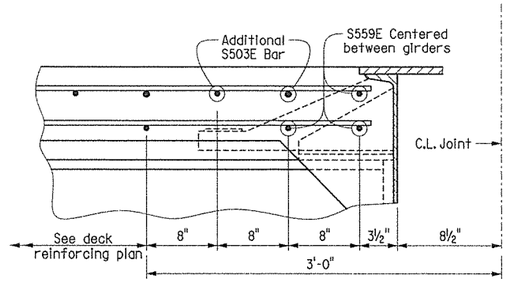
No Scale

** Closure pours at the finger joints shall be made after all incremental pours on the unit have been placed. 48 hours shall elapse between the last incremental pour and the closure pours.



DETAIL A

No Scale



SECTION Z-Z

No Scale

Note: Pours must be made in order as numbered. Pours with the same number may be placed simultaneously or separately. 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between the end of a pour and the start of the adjacent pour. Any railing pours made before the entire slab unit has been placed must be approved by the Engineer. Concrete in bridge superstructure shall be consolidated for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent.

The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.

Required slab joints and pouring sequence joints shall align with parapet open joint at the gutterline.

For slab joint detail, see Dwg. No. 55593.

For Bar List, See Dwg. No. 55579.

STATE OF ARKANSAS
Larry W. Miller
REGISTERED PROFESSIONAL ENGINEER
No. 11339
8/29/14
LARRY W. MILLER

BRIDGE ENGINEER

SHEET 3 OF 9
DETAILS OF 690'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION

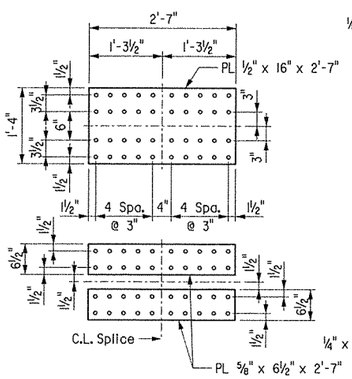
LITTLE ROCK, ARK.

DRAWN BY: DLM DATE: 02-14
CHECKED BY: LWM DATE: 03-07-14
DESIGNED BY: DLM DATE: 01-14

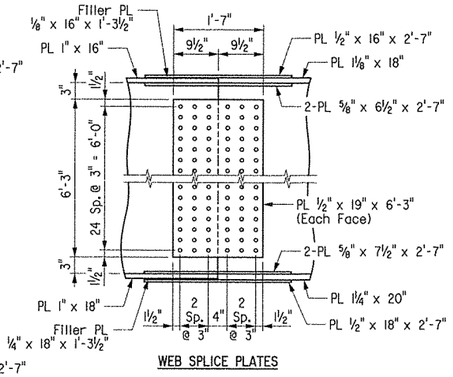
FILENAME: b070240_S13.dgn
SCALE: NONE

BRIDGE NO. 07316 DRAWING NO. 55577

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	84	172
				(1) 07316		SPAN DETAILS		55578

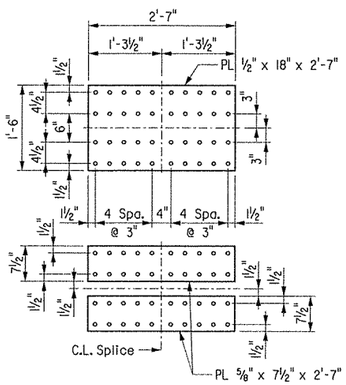


TOP FLANGE SPLICE PLATES

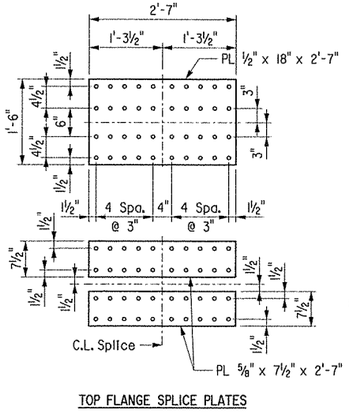


WEB SPLICE PLATES

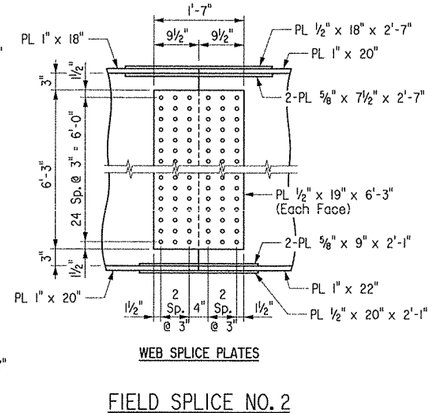
FIELD SPLICE NO. 1



BOTTOM FLANGE SPLICE PLATES

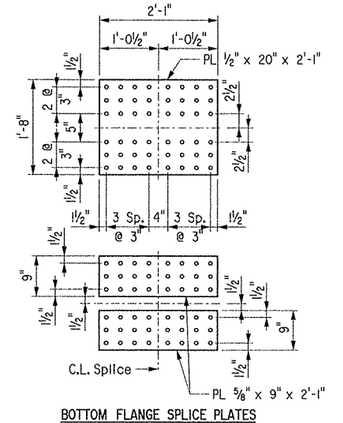


TOP FLANGE SPLICE PLATES

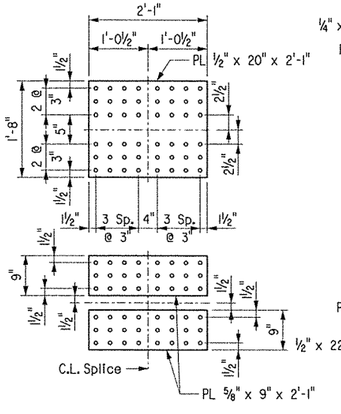


WEB SPLICE PLATES

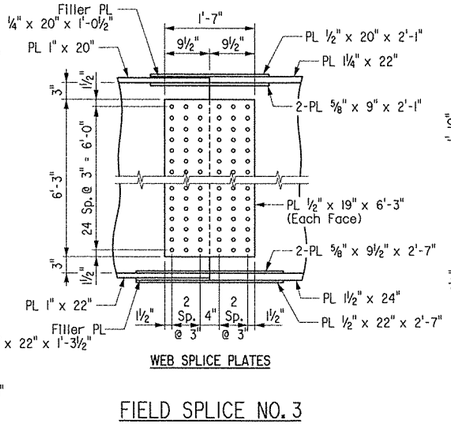
FIELD SPLICE NO. 2



BOTTOM FLANGE SPLICE PLATES

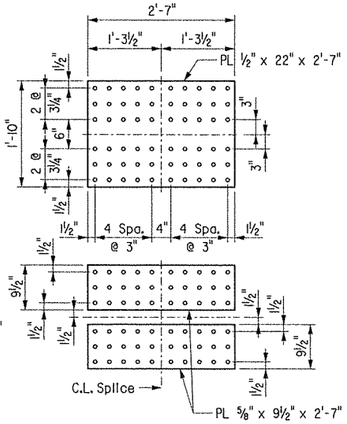


TOP FLANGE SPLICE PLATES

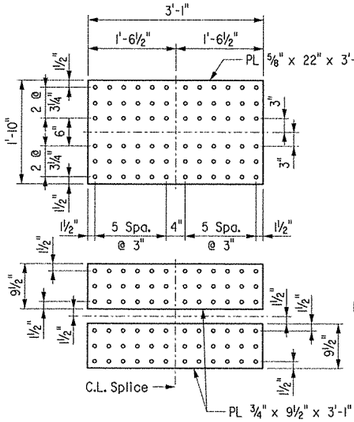


WEB SPLICE PLATES

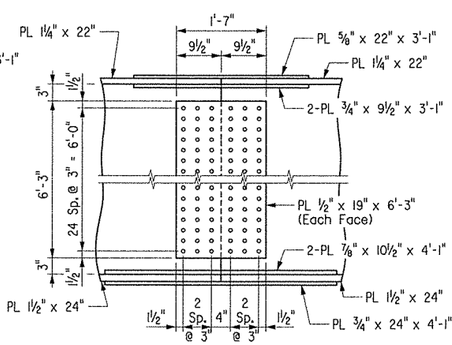
FIELD SPLICE NO. 3



BOTTOM FLANGE SPLICE PLATES

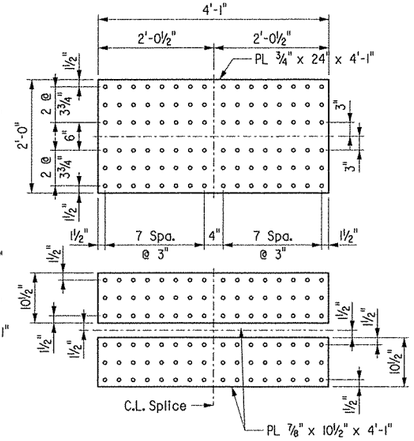


TOP FLANGE SPLICE PLATES

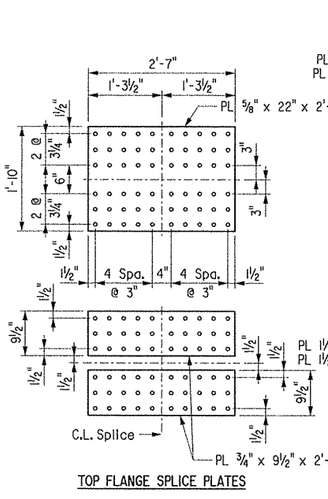


WEB SPLICE PLATES

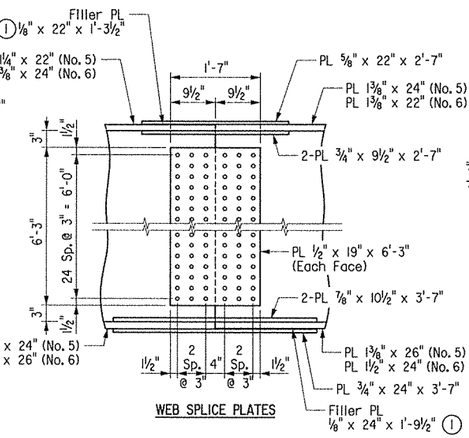
FIELD SPLICE NO. 4



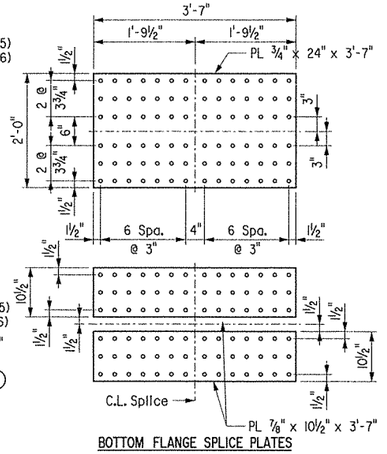
BOTTOM FLANGE SPLICE PLATES



TOP FLANGE SPLICE PLATES



WEB SPLICE PLATES



BOTTOM FLANGE SPLICE PLATES

FIELD SPLICE NO. 5 & 6

(1) NOTE: Filler PL only required for Field Splice No. 5

NOTES

All field splice bolts shall be ⅞" diameter H.S. Bolts.

All field splice plates shall be AASHTO M270, Gr. 50W steel.

STATE OF ARKANSAS
Larry W. Miller
REGISTERED PROFESSIONAL ENGINEER
No. 11339
8/29/14
LARRY W. MILLER

BRIDGE ENGINEER

SHEET 4 OF 9
DETAILS OF 690'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

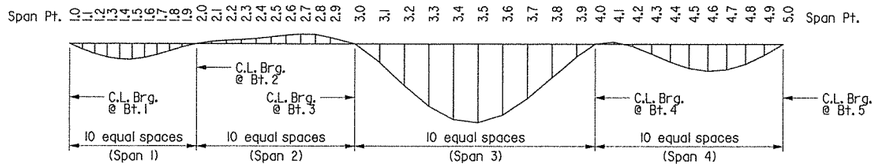
DRAWN BY: DLM DATE: 02-14 FILENAME: b070240_S14.dgn

CHECKED BY: LWM DATE: 03-07-14 SCALE: ¾" = 1'-0"

DESIGNED BY: DLM DATE: 01-14

BRIDGE NO. 07316 DRAWING NO. 55578

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	88	172
				(1) 07316		SPAN DETAILS		55579



DEAD LOAD DEFLECTION DIAGRAM

No Scale

LOAD DISTRIBUTION TO GIRDERS:

	Girders 1 & 5	Girders 2 - 4
Dead Loads: To Girder	790 PLF + 1.12 (wt./ft. of Girder)	826 PLF + 1.12 (wt./ft. of Girder)
Dead Loads: To Composite Girder	422 PLF, Includes 160 PLF Future Wearing Surface	

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

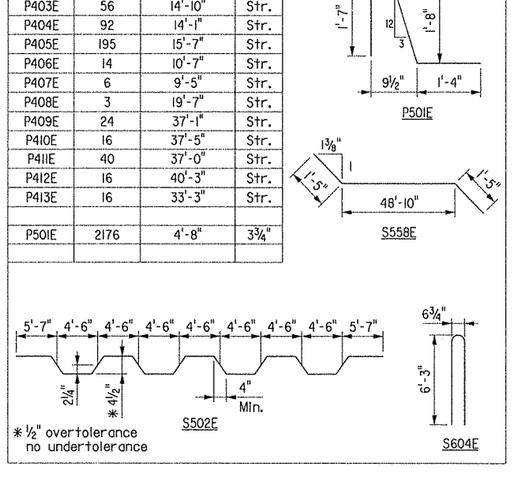
Camber for Dead Load Deflection plus vertical curve +/- 1/4" tolerance.
Deflections shown are off a chord from C.L. Brg. to C.L. Brg.
Vertical curve corrections not included. Negative sign (-) indicates upward deflection.

SPAN NO.	POINT OF DEFLECTION	BEAM NO. 1			BEAM NO. 2			BEAM NO. 3			BEAM NO. 4			BEAM NO. 5		
		Structural Steel	Structural Steel +Slab	Structural Steel +Slab +Para. Rail	Structural Steel	Structural Steel +Slab	Structural Steel +Slab +Para. Rail	Structural Steel	Structural Steel +Slab	Structural Steel +Slab +Para. Rail	Structural Steel	Structural Steel +Slab	Structural Steel +Slab +Para. Rail	Structural Steel	Structural Steel +Slab	Structural Steel +Slab +Para. Rail
1	1.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	1.10	0.129	0.462	0.511	0.130	0.477	0.523	0.129	0.477	0.522	0.128	0.471	0.516	0.121	0.434	0.480
	1.20	0.234	0.834	0.922	0.244	0.895	0.980	0.243	0.897	0.981	0.240	0.884	0.968	0.227	0.813	0.899
	1.30	0.314	1.116	1.234	0.326	1.196	1.310	0.325	1.198	1.311	0.322	1.182	1.295	0.303	1.083	1.198
	1.40	0.359	1.272	1.406	0.372	1.358	1.488	0.370	1.361	1.489	0.366	1.340	1.468	0.346	1.234	1.365
	1.50	0.364	1.282	1.417	0.375	1.364	1.494	0.374	1.367	1.495	0.369	1.345	1.473	0.349	1.237	1.368
	1.60	0.331	1.159	1.281	0.340	1.227	1.344	0.338	1.229	1.344	0.334	1.208	1.323	0.315	1.111	1.229
	1.70	0.265	0.920	1.016	0.270	0.965	1.057	0.269	0.968	1.059	0.265	0.949	1.039	0.250	0.872	0.964
	1.80	0.179	0.613	0.677	0.180	0.634	0.695	0.179	0.636	0.695	0.176	0.621	0.680	0.168	0.579	0.640
	1.90	0.087	0.292	0.322	0.083	0.286	0.313	0.083	0.288	0.315	0.081	0.279	0.305	0.075	0.254	0.281
2	2.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	2.10	-0.067	-0.204	-0.224	-0.064	-0.198	-0.216	-0.064	-0.199	-0.217	-0.061	-0.188	-0.205	-0.056	-0.168	-0.185
	2.20	-0.114	-0.322	-0.352	-0.104	-0.291	-0.317	-0.102	-0.292	-0.317	-0.097	-0.270	-0.293	-0.085	-0.230	-0.252
	2.30	-0.151	-0.401	-0.437	-0.138	-0.363	-0.396	-0.135	-0.363	-0.393	-0.128	-0.330	-0.358	-0.112	-0.281	-0.307
	2.40	-0.196	-0.513	-0.559	-0.179	-0.461	-0.502	-0.175	-0.462	-0.500	-0.164	-0.416	-0.451	-0.142	-0.346	-0.377
	2.50	-0.244	-0.645	-0.704	-0.226	-0.596	-0.650	-0.221	-0.596	-0.646	-0.209	-0.544	-0.591	-0.180	-0.447	-0.489
	2.60	-0.288	-0.784	-0.858	-0.271	-0.744	-0.813	-0.266	-0.745	-0.810	-0.253	-0.690	-0.751	-0.219	-0.570	-0.625
	2.70	-0.312	-0.875	-0.960	-0.296	-0.846	-0.925	-0.292	-0.848	-0.924	-0.280	-0.796	-0.869	-0.238	-0.648	-0.713
	2.80	-0.284	-0.815	-0.896	-0.276	-0.815	-0.892	-0.273	-0.817	-0.892	-0.263	-0.774	-0.846	-0.225	-0.634	-0.700
	2.90	-0.187	-0.549	-0.605	-0.181	-0.546	-0.599	-0.179	-0.548	-0.600	-0.173	-0.523	-0.574	-0.153	-0.445	-0.493
3	3.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	3.10	0.511	1.543	1.711	0.514	1.607	1.769	0.510	1.610	1.769	0.498	1.557	1.714	0.467	1.409	1.563
	3.20	1.147	3.485	3.866	1.167	3.677	4.048	1.158	3.683	4.047	1.131	3.565	3.925	1.081	3.288	3.647
	3.30	1.721	5.248	5.823	1.752	5.538	6.096	1.736	5.542	6.089	1.695	5.364	5.906	1.625	4.962	5.506
	3.40	2.093	6.397	7.100	2.126	6.737	7.417	2.103	6.731	7.397	2.050	6.506	7.165	1.961	5.999	6.659
	3.50	2.188	6.697	7.434	2.215	7.032	7.744	2.185	7.007	7.702	2.124	6.757	7.443	2.023	6.199	6.885
	3.60	1.989	6.095	6.768	2.004	6.374	7.022	1.968	6.326	6.955	1.906	6.077	6.695	1.804	5.535	6.152
	3.70	1.540	4.726	5.250	1.542	4.915	5.417	1.503	4.845	5.329	1.446	4.624	5.097	1.355	4.164	4.633
	3.80	0.948	2.916	3.242	0.940	3.008	3.317	0.904	2.930	3.224	0.858	2.759	3.042	0.789	2.432	2.710
	3.90	0.379	1.172	1.304	0.367	1.185	1.307	0.343	1.126	1.238	0.313	1.022	1.127	0.278	0.864	0.966
4	4.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	4.10	-0.084	-0.276	-0.306	-0.070	-0.252	-0.275	-0.044	-0.179	-0.192	-0.008	-0.063	-0.066	0.025	0.053	0.056
	4.20	-0.040	-0.166	-0.183	0.024	0.009	0.016	0.091	0.206	0.235	0.174	0.464	0.517	0.247	0.704	0.776
	4.30	0.091	0.214	0.239	0.203	0.541	0.604	0.315	0.876	0.975	0.441	1.267	1.405	0.564	1.651	1.824
	4.40	0.245	0.672	0.747	0.393	1.118	1.240	0.544	1.577	1.748	0.706	2.074	2.295	0.868	2.569	2.840
	4.50	0.369	1.048	1.163	0.543	1.581	1.750	0.718	2.117	2.342	0.900	2.671	2.953	1.084	3.229	3.570
	4.60	0.439	1.269	1.407	0.614	1.811	2.003	0.792	2.357	2.605	0.975	2.912	3.219	1.163	3.478	3.845
	4.70	0.436	1.271	1.409	0.590	1.752	1.937	0.749	2.242	2.477	0.912	2.735	3.022	1.079	3.237	3.579
	4.80	0.351	1.030	1.141	0.467	1.392	1.539	0.586	1.760	1.944	0.708	2.130	2.353	0.834	2.507	2.772
	4.90	0.197	0.580	0.643	0.259	0.774	0.855	0.323	0.972	1.073	0.389	1.171	1.294	0.456	1.373	1.518
	5.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

BAR LIST

Bending Diagrams
(Dimensions are out to out of bars.)

Mark	No. Req'd.	Length	Pin Dia.
S401E	551	39'-8"	Str.
S501E	728	57'-7"	Str.
S502E	672	43'-6"	3"
S503E	1350	42'-10"	Str.
S504E to S557E	2 ea.	3'-1" to 40'-10"	Str.
S558E	2	51'-8"	3 3/4"
S559E	20	7'-8"	Str.
S601E	58	50'-0"	Str.
S602E	58	60'-0"	Str.
S603E	116	41'-7"	Str.
S604E	1369	13'-4"	5 1/4"
P401E	2176	5'-6"	3"
P402E	584	4'-10"	3"
P403E	56	14'-10"	Str.
P404E	92	14'-1"	Str.
P405E	195	15'-7"	Str.
P406E	14	10'-7"	Str.
P407E	6	9'-5"	Str.
P408E	3	19'-7"	Str.
P409E	24	37'-1"	Str.
P410E	16	37'-5"	Str.
P411E	40	37'-0"	Str.
P412E	16	40'-3"	Str.
P413E	16	33'-3"	Str.
P501E	2176	4'-8"	3 3/4"



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11339
LARRY W. MILLER
8/29/14

BRIDGE ENGINEER

SHEET 5 OF 9
DETAILS OF 690'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: DLM DATE: 02-14 FILENAME: b070240_S15.dgn
CHECKED BY: LWM DATE: 03-07-14 SCALE: NONE
DESIGNED BY: DLM DATE: 01-14

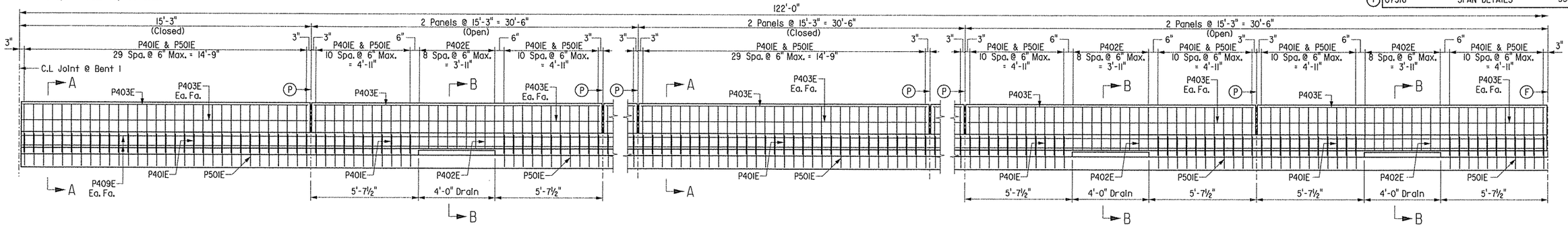
BRIDGE NO. 07316 DRAWING NO. 55579

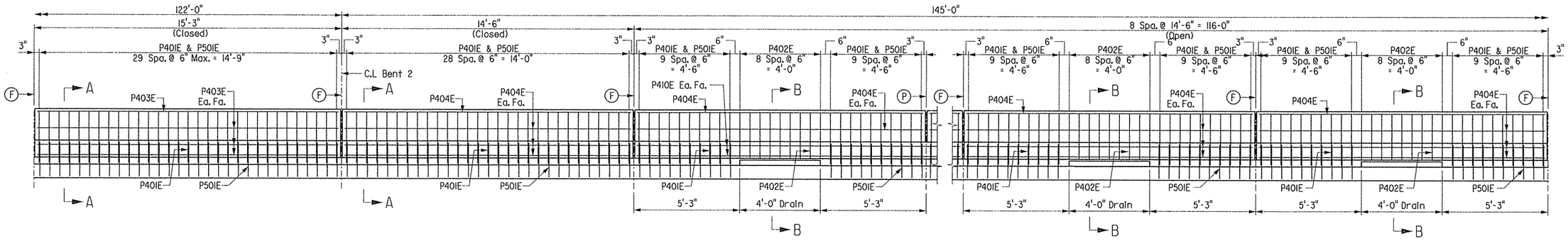
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	89	172
				(1) 07316		SPAN DETAILS		55580

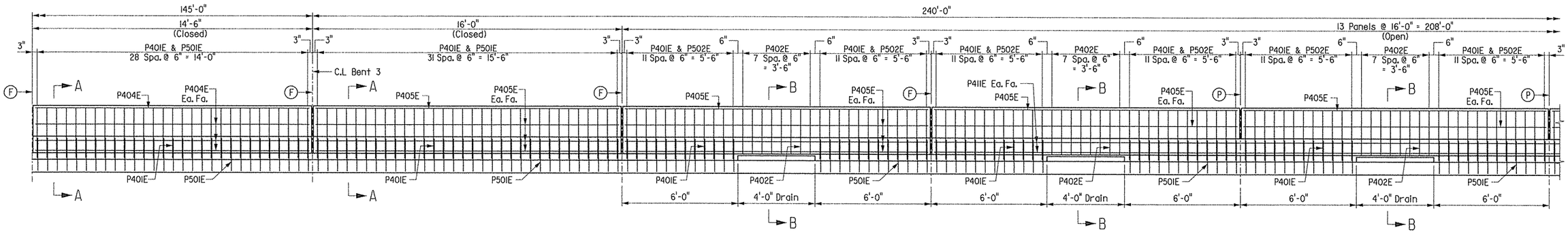
(P) C.L. Partial Depth Parapet Joint (¼" to 1" max.). Stop 1'-2" from top of slab.

(F) C.L. Full Depth Parapet Joint (¼" to 1" max.). Stop 4" from top of slab.

Minimum lap for horizontal #4 parapet bars = 2'-3"







Note: All dimensions shown are taken along gutterline of bridge.

Note: For Sections A-A & B-B, see Dwg. No. 55583.

Note: For Bar List, see Dwg. No. 55579.

Note: For DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL, see Dwg. No. 55592.

DETAILS OF PARAPET RAIL - LEFT SIDE OF BRIDGE

Scale: ⅜" = 1'-0"

STATE OF ARKANSAS
LARRY W. MILLER
REGISTERED PROFESSIONAL ENGINEER
No. 13339
5/29/14

BRIDGE ENGINEER

SHEET 6 OF 9
DETAILS OF 690'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: BEG DATE: 02-14
CHECKED BY: LWM DATE: 03-07-14
DESIGNED BY: BEG DATE: 02-14

FILENAME: b070240_S16.dgn
SCALE: NONE

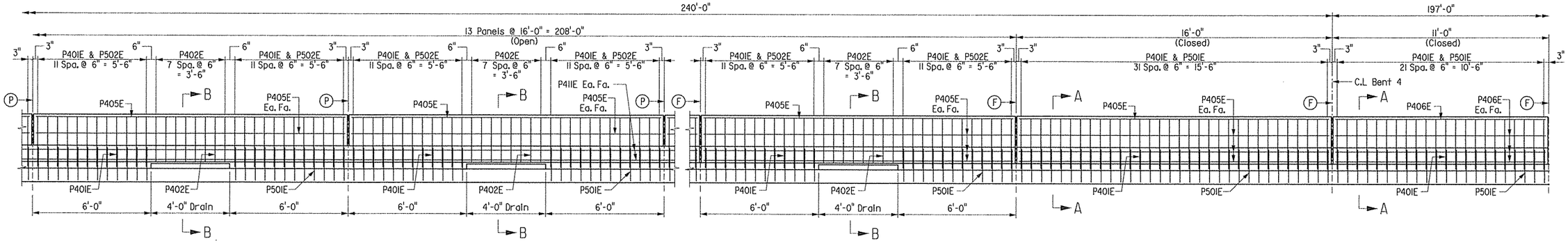
BRIDGE NO. 07316 DRAWING NO. 55580

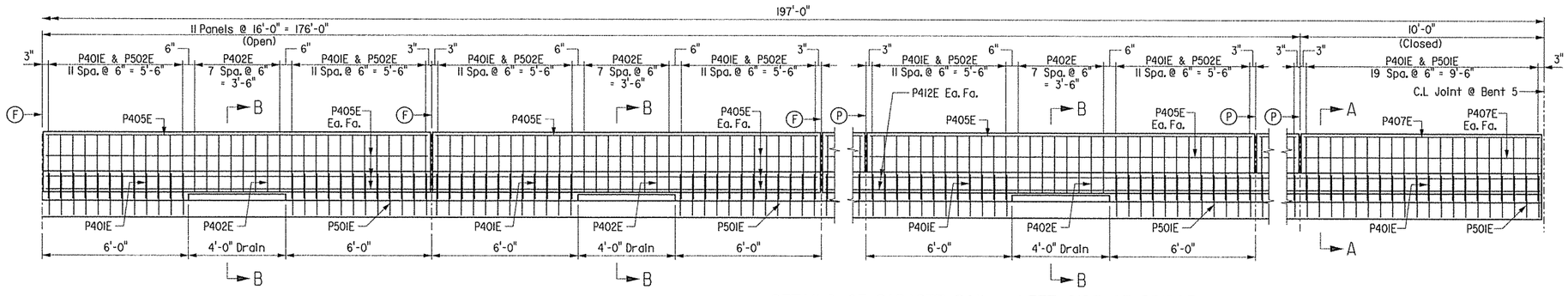
(P) C.L. Partial Depth Parapet Joint (¼" to 1" max.). Stop 1'-2" from top of slab.

(F) C.L. Full Depth Parapet Joint (¼" to 1" max.). Stop 4" from top of slab.

Minimum lap for horizontal #4 parapet bars = 2'-3"

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	9D	172
				(1) 07316		SPAN DETAILS		55581





DETAILS OF PARAPET RAIL - LEFT SIDE OF BRIDGE

Scale: ⅜" = 1'-0"

Note: All dimensions shown are taken along gutterline of bridge.

Note: For Sections A-A & B-B, see Dwg. No. 55583.

Note: For Bar List, see Dwg. No. 55579.

Note: For DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL, see Dwg. No. 55592.

STATE OF ARKANSAS
Larry W. Miller
REGISTERED PROFESSIONAL ENGINEER
No. 11339
9/2/14
LARRY W. MILLER
BRIDGE ENGINEER

SHEET 7 OF 9
DETAILS OF 690'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT
OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BEG DATE: 02-14
CHECKED BY: LWM DATE: 03-07-14
DESIGNED BY: BEG DATE: 02-14

FILENAME: b070240_S17.dgn
SCALE: AS SHOWN

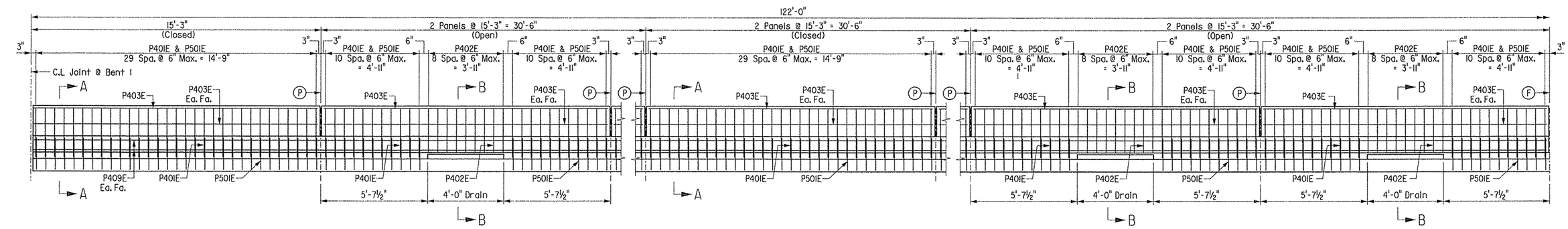
BRIDGE NO. 07316 DRAWING NO. 55581

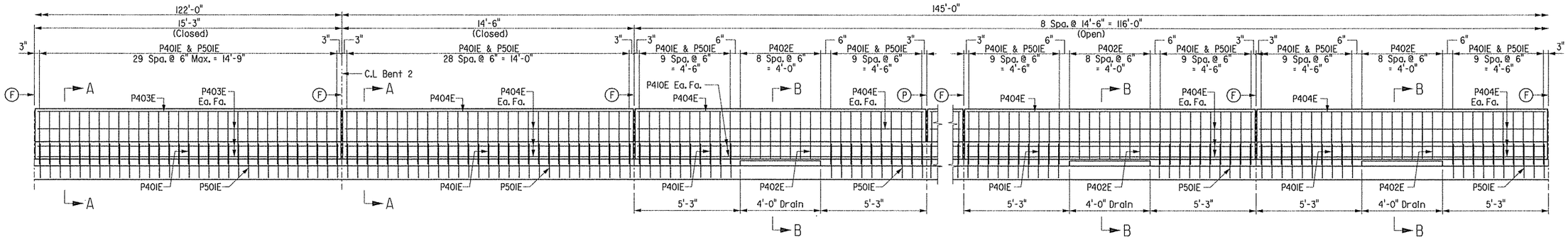
(P) C.L. Partial Depth Parapet Joint (¼" to 1" max.). Stop 1'-2" from top of slab.

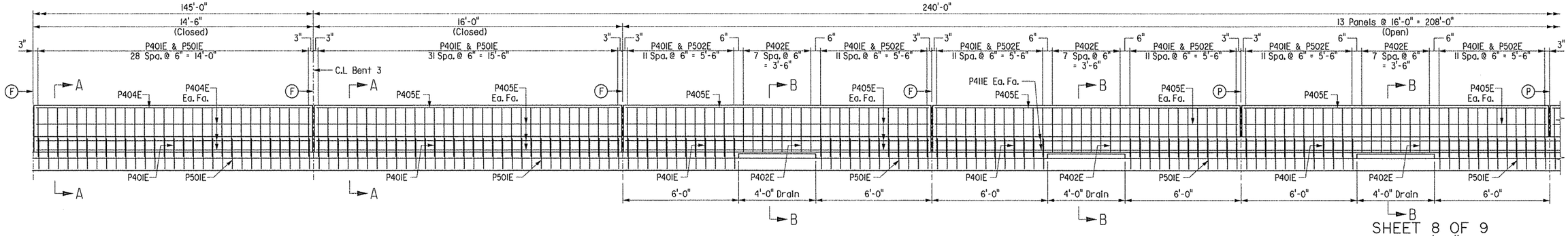
(F) C.L. Full Depth Parapet Joint (¼" to 1" max.). Stop 4" from top of slab.

Minimum lap for horizontal #4 parapet bars = 2'-3"

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	91	172
				(1) 07316		SPAN DETAILS		55582







Note: All dimensions shown are taken along gutterline of bridge.

Note: For Sections A-A & B-B, see Dwg. No. 55583.

Note: For Bar List, see Dwg. No. 55579.

Note: For DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL, see Dwg. No. 55592.

DETAILS OF PARAPET RAIL - RIGHT SIDE OF BRIDGE

Scale: ⅜" = 1'-0"

STATE OF ARKANSAS
Larry W. Miller
REGISTERED PROFESSIONAL ENGINEER
No. 10339
LARRY W. MILLER
9/29/14
BRIDGE ENGINEER

SHEET 8 OF 9
DETAILS OF 690'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: BEG DATE: 02-14
CHECKED BY: LWM DATE: 03-07-14
DESIGNED BY: BEG DATE: 02-14

FILENAME: b070240_S18.dgn
SCALE: AS SHOWN

BRIDGE NO. 07316

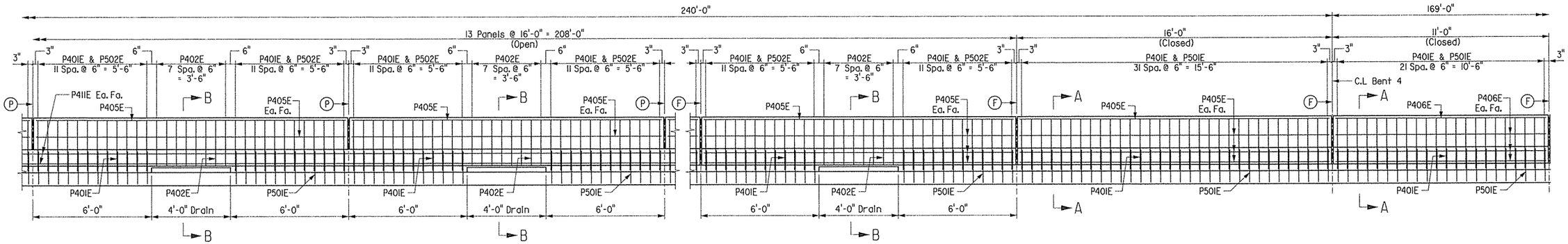
DRAWING NO. 55582

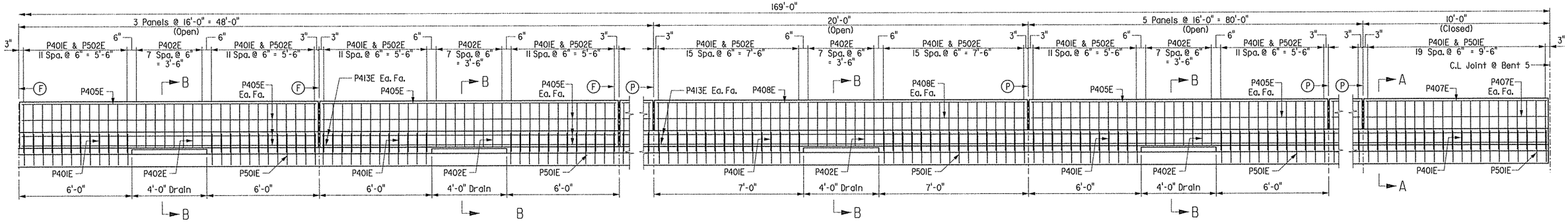
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	92	172
				(1) 07316		SPAN DETAILS		55583

(P) C.L. Partial Depth Parapet Joint (¼" to 1" max.). Stop 1'-2" from top of slab.

(F) C.L. Full Depth Parapet Joint (¼" to 1" max.). Stop 4" from top of slab.

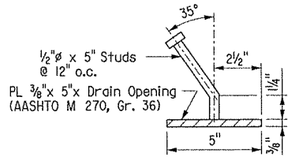
Minimum lap for horizontal #4 parapet bars = 2'-3"





DETAILS OF PARAPET RAIL - RIGHT SIDE OF BRIDGE

Scale: ⅜" = 1'-0"



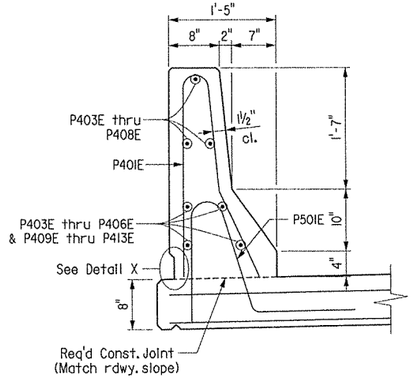
DETAIL Y

No Scale

Note:

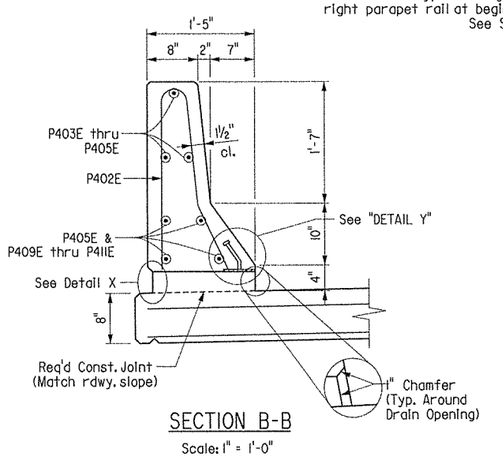
Parapet Studs shall be 5" long, granular flux filled, solid fluxed, or equal, and automatically end welded to the plate. Studs and plate shall meet the requirements of Section 807. Studs and plate shall be measured and paid for as "STRUCTURAL STEEL IN PLATE GIRDER SPANS (M270, Gr. 50W)".

The surfaces of the ⅜" Plates which will not be in contact with concrete shall be painted in accordance with Section 638, or as approved by the Engineer. Only one coat is required and shall be applied in the fabricator's shop. Painting will not be paid for directly, but will be considered subsidiary to "STRUCTURAL STEEL IN PLATE GIRDER SPANS (M270, Gr. 50W)".



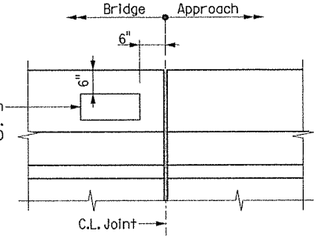
SECTION A-A

Scale: 1" = 1'-0"



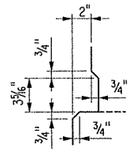
SECTION B-B

Scale: 1" = 1'-0"



NAME PLATE DETAIL

No Scale



DETAIL X

No Scale

Note: All dimensions shown are taken along gutterline of bridge.

Note: For Bar List, see Dwg. No. 55579.

Note: For DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL, see Dwg. No. 55592.

STATE OF ARKANSAS
Larry W. Miller
REGISTERED PROFESSIONAL ENGINEER
No. 11339
8/29/14
LARRY W. MILLER
BRIDGE ENGINEER

SHEET 9 OF 9
DETAILS OF 690'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: BEG DATE: 02-14 FILENAME: b070240_S19.dgn

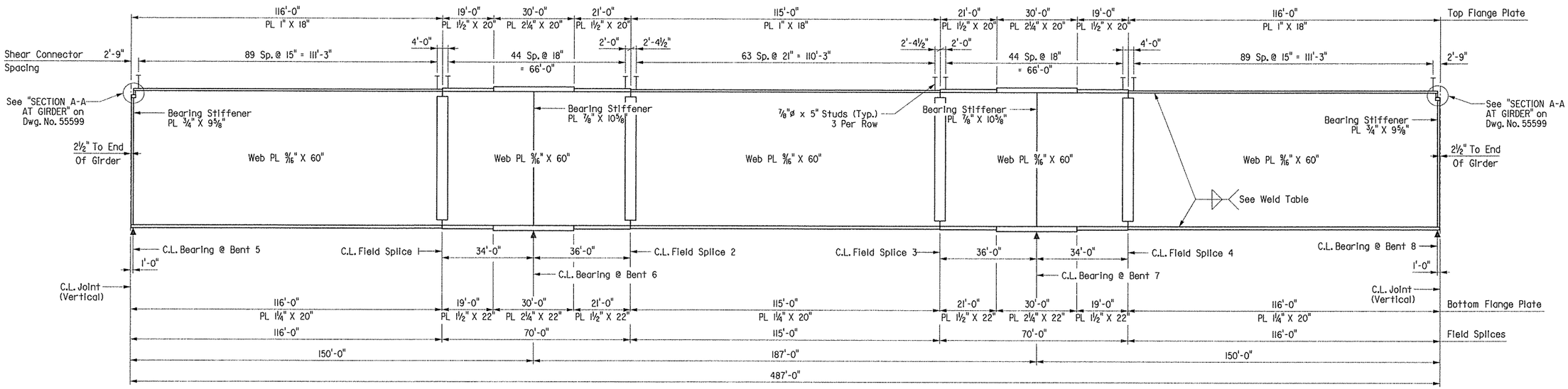
CHECKED BY: LWM DATE: 03-07-14 SCALE: AS SHOWN

DESIGNED BY: BEG DATE: 02-14

BRIDGE NO. 07316 DRAWING NO. 55583

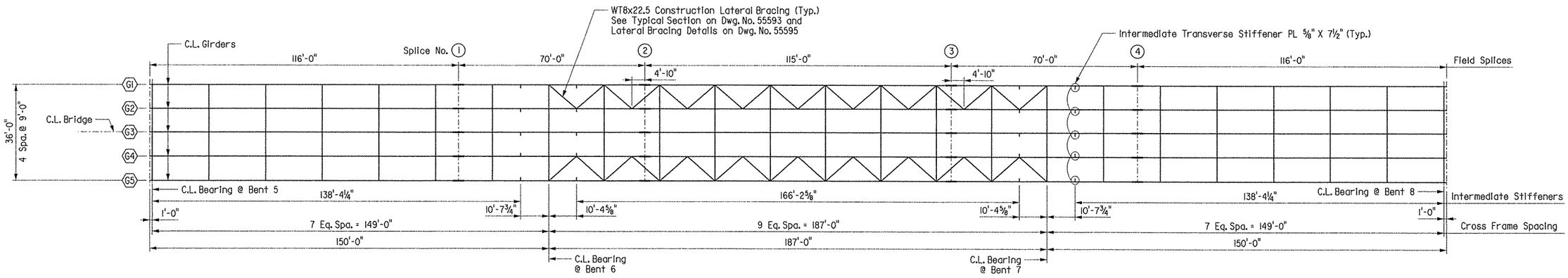
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		070240	93	172
1 07316		SPAN DETAILS		55584



GIRDER ELEVATION

No Scale



FRAMING PLAN

No Scale

NOTES

Bolted field splices shown may be eliminated or shop welded splices may be substituted with approval of the Engineer. Payment will be made on the basis of the plan quantities.

All plates are AASHTO M270 Grade 50W.

For additional information, see Drawing Nos. 55586 & 55593-55595.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11339
8/27/14
LARRY W. MILLER

BRIDGE ENGINEER

SHEET 1 OF 4
DETAILS OF 487'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

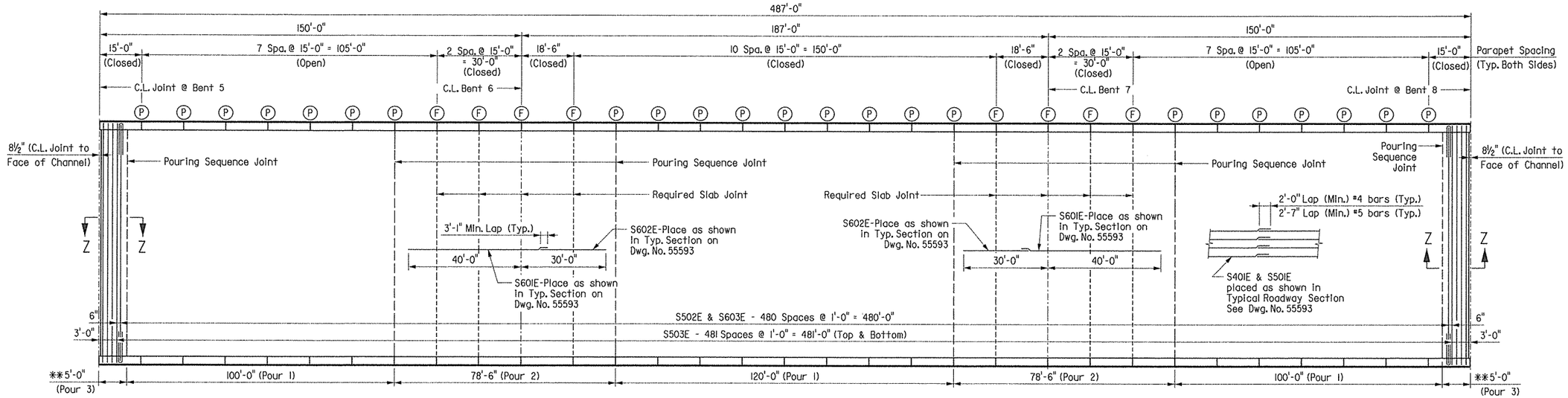
DRAWN BY: VCS DATE: 2-14 FILENAME: b070240_S21.dgn
CHECKED BY: LWM DATE: 03-07-14 SCALE: NONE
DESIGNED BY: DLM DATE: 1-14

BRIDGE NO. 07316 DRAWING NO. 55584

(P) C.L. Partial Depth Parapet Joint (¼" to 1" max.). Stop 1'-2" from top of slab.

(F) C.L. Full Depth Parapet Joint (¼" to 1" max.). Stop 4" from top of slab.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	94	172
				(1) 07316		SPAN DETAILS		55585



REINFORCING PLAN & POURING SEQUENCE

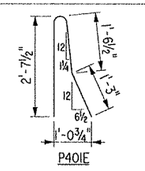
No Scale

** Closure pours at the finger joints shall be made after all incremental pours on the unit have been placed. 48 hours shall elapse between the last incremental pour and the closure pours.

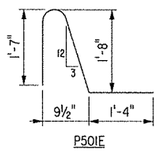
BAR LIST

Bending Diagrams
(Dimensions are out to out of bars.)

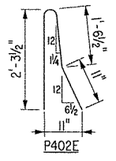
Mark	No. Req'd.	Length	Pin Dia.
S401E	377	39'-3"	Str.
S501E	504	56'-4"	Str.
S502E	481	43'-6"	3"
S503E	968	42'-10"	Str.
S504E	40	7'-8"	Str.
S601E	116	50'-0"	Str.
S602E	116	23'-1"	Str.
S603E	962	13'-4"	5¼"
P401E	1724	5'-6"	3"
P402E	224	4'-10"	3"
P403E	212	14'-7"	Str.
P404E	28	18'-1"	Str.
P405E	64	31'-9"	Str.
P406E	32	39'-3"	Str.
P501E	1724	4'-8"	3¾"



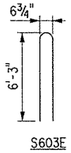
P401E



P501E



P402E



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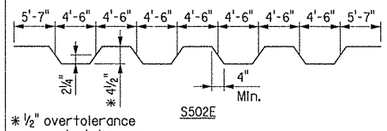
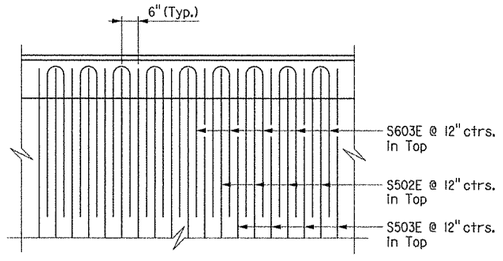


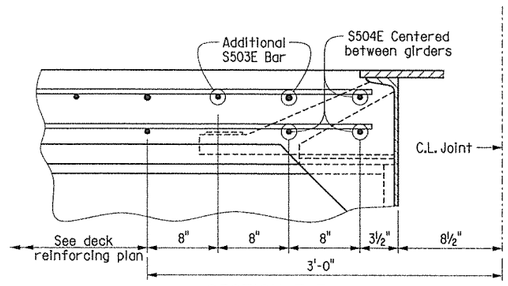
S502E

*½" overtolerance
no undertolerance



DETAIL A

No Scale



SECTION Z-Z

No Scale

Note: Pours must be made in order as numbered. Pours with the same number may be placed simultaneously or separately. 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between the end of a pour and the start of the adjacent pour. Any railing pours made before the entire slab unit has been placed must be approved by the Engineer. Concrete in bridge superstructure shall be consolidated for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent.

The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.

Required slab joints and pouring sequence joints shall align with parapet open joint at the gutterline.

For slab joint detail, see Dwg. No. 55593.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11339
8/29/14
LARRY W. MILLER

BRIDGE ENGINEER

SHEET 2 OF 4
DETAILS OF 487'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: VCS DATE: 2-14 FILENAME: b070240_S22.dgn

CHECKED BY: LWM DATE: 03-07-14 SCALE: As Shown

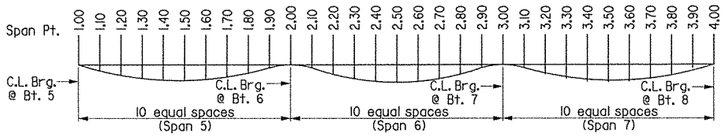
DESIGNED BY: DLM DATE: 1-14

BRIDGE NO. 07316 DRAWING NO. 55585

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	95	172
				(1) 07316		SPAN DETAILS		55586

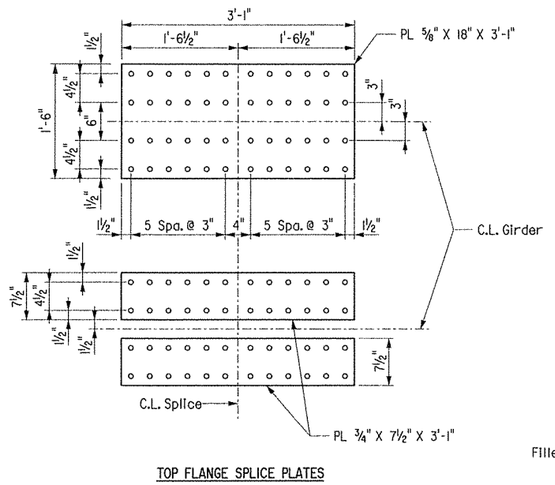
LOAD DISTRIBUTION TO GIRDERS:

	Girders 1 & 5	Girders 2 - 4
Dead Loads: To Girder	790 PLF + 1.12 (wt./ft. of Girder)	826 PLF + 1.12 (wt./ft. of Girder)
Dead Loads: To Composite Girder	422 PLF, Includes 160 PLF Future Wearing Surface	

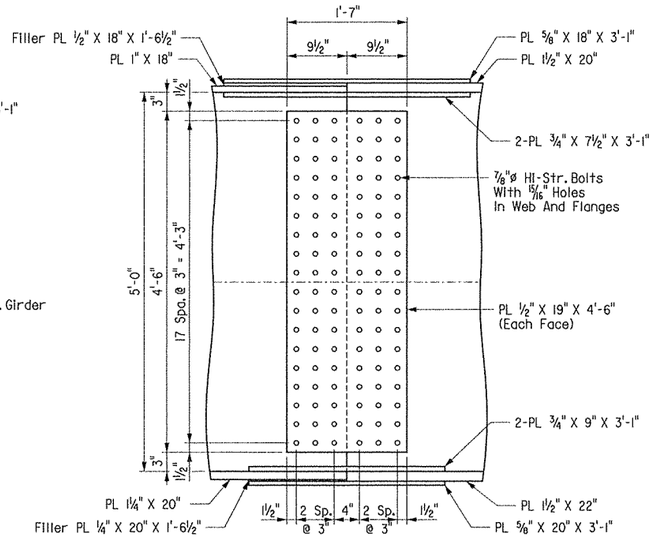


DEAD LOAD DEFLECTION DIAGRAM

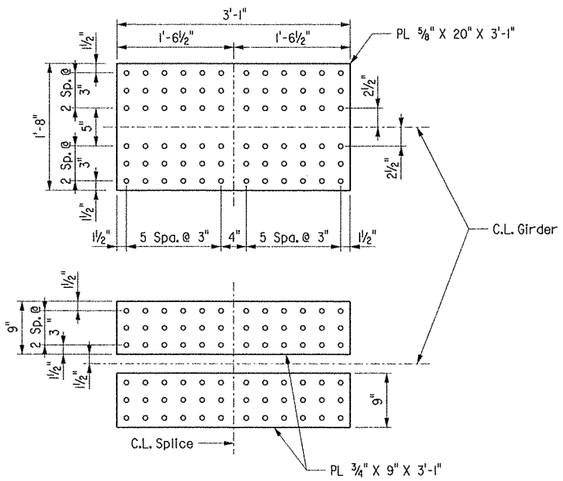
No Scale



TOP FLANGE SPLICE PLATES



WEB SPLICE PLATES



BOTTOM FLANGE SPLICE PLATES

FIELD SPLICE NOs. 1, 2, 3, & 4

(Splices 1 & 3 shown. 2 & 4 are opposite hand.)

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Camber for Dead Load Deflection plus vertical curve +/- ¼" tolerance. Deflections shown are off a chord from C.L. Brg. to C.L. Brg. Vertical curve corrections not included. Negative sign (-) indicates upward deflection.

SPAN NO.	POINT OF DEFLECTION	INTERIOR GIRDER Structural Steel	INTERIOR GIRDER Structural Steel +Slab	INTERIOR GIRDER Structural Steel +Slab +Para. Rail	EXTERIOR GIRDER Structural Steel	EXTERIOR GIRDER Structural Steel +Slab	EXTERIOR GIRDER Structural Steel +Slab +Para. Rail
5	1.00	0.000	0.000	0.000	0.000	0.000	0.000
	1.10	0.328	1.302	1.430	0.325	1.280	1.409
	1.20	0.586	2.323	2.551	0.581	2.286	2.516
	1.30	0.772	3.051	3.351	0.765	3.003	3.305
	1.40	0.844	3.321	3.648	0.837	3.270	3.600
	1.50	0.810	3.168	3.480	0.803	3.118	3.433
	1.60	0.678	2.627	2.886	0.672	2.584	2.845
	1.70	0.482	1.843	2.023	0.478	1.812	1.994
	1.80	0.279	1.044	1.144	0.276	1.025	1.125
	1.90	0.102	0.365	0.397	0.101	0.359	0.391
6	2.00	0.000	0.000	0.000	0.000	0.000	0.000
	2.10	0.043	0.220	0.257	0.041	0.212	0.249
	2.20	0.226	1.003	1.135	0.222	0.980	1.112
	2.30	0.463	1.996	2.239	0.458	1.958	2.203
	2.40	0.655	2.791	3.120	0.648	2.744	3.076
	2.50	0.729	3.098	3.460	0.721	3.047	3.411
	2.60	0.655	2.791	3.120	0.648	2.744	3.076
	2.70	0.463	1.996	2.239	0.458	1.958	2.203
	2.80	0.226	1.003	1.135	0.222	0.980	1.112
	2.90	0.043	0.220	0.257	0.041	0.212	0.249
7	3.00	0.000	0.000	0.000	0.000	0.000	0.000
	3.10	0.102	0.365	0.397	0.101	0.359	0.391
	3.20	0.279	1.044	1.144	0.276	1.025	1.125
	3.30	0.482	1.843	2.023	0.478	1.812	1.994
	3.40	0.678	2.627	2.886	0.672	2.584	2.845
	3.50	0.810	3.168	3.480	0.803	3.118	3.433
	3.60	0.844	3.321	3.648	0.837	3.270	3.600
	3.70	0.772	3.051	3.351	0.765	3.003	3.305
	3.80	0.586	2.323	2.551	0.581	2.286	2.516
	3.90	0.328	1.302	1.430	0.325	1.280	1.409
	4.00	0.000	0.000	0.000	0.000	0.000	0.000

NOTES

All field splice bolts shall be ⅞" diameter H.S. Bolts.

All field splice plates shall be AASHTO M270, Gr. 50W steel.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11339
LARRY W. MILLER
8/29/14

BRIDGE ENGINEER

SHEET 3 OF 4
DETAILS OF 487'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: VCS DATE: 2-4 FILENAME: b070240_S23.dgn
CHECKED BY: LWM DATE: 03-07-14 SCALE: As Shown
DESIGNED BY: DLM DATE: 1-14

BRIDGE NO. 07316 DRAWING NO. 55586

(P) C.L. Partial Depth Parapet Joint (¼" to 1" max.). Stop 1'-2" from top of slab.

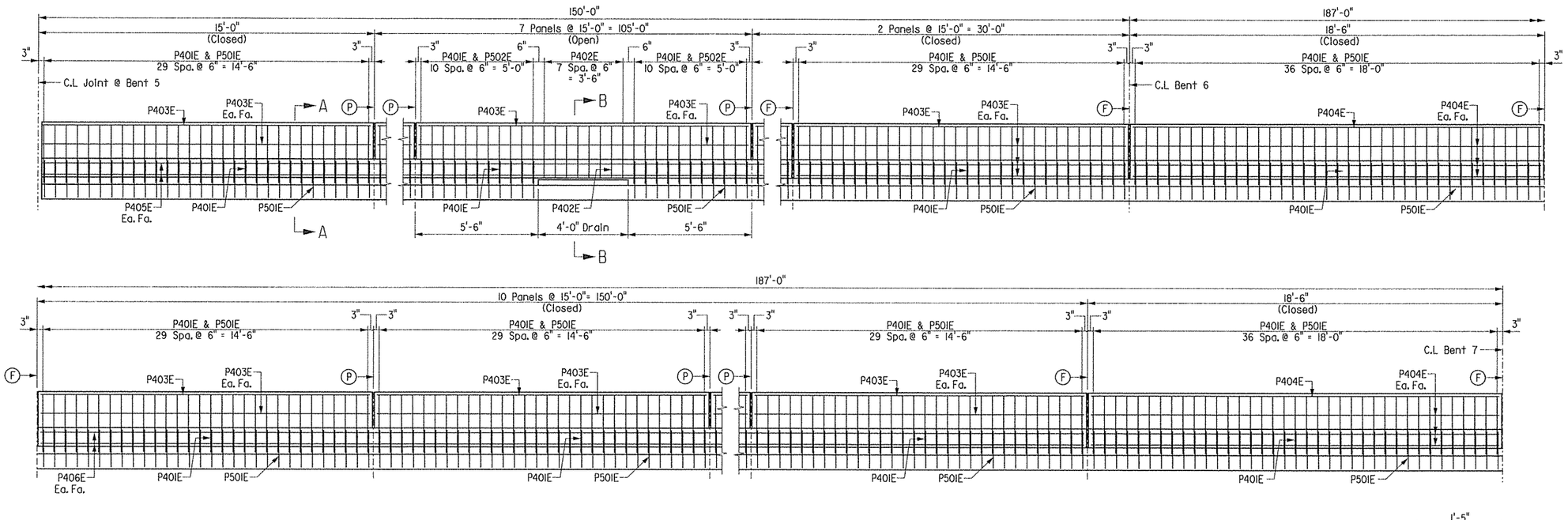
(F) C.L. Full Depth Parapet Joint (¼" to 1" max.). Stop 4" from top of slab.

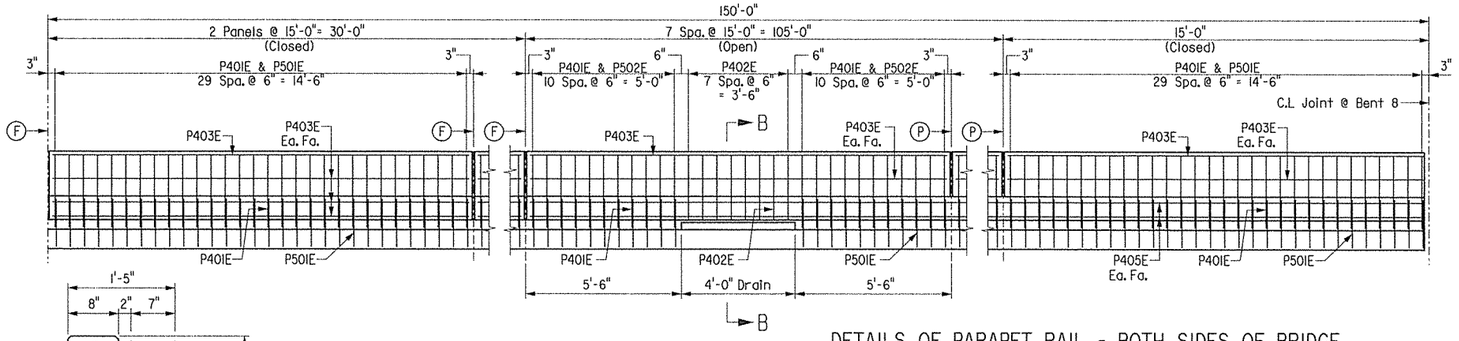
Minimum lap for horizontal #4 parapet bars = 2'-3"

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		070240	96	172

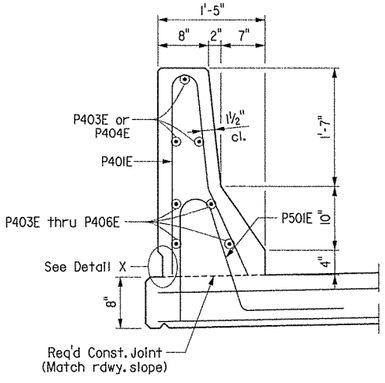
(1) 07316 SPAN DETAILS 55587





DETAILS OF PARAPET RAIL - BOTH SIDES OF BRIDGE

Scale: ⅜" = 1'-0"



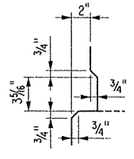
SECTION A-A

Scale: 1" = 1'-0"

Note: All dimensions shown are taken along gutterline of bridge.

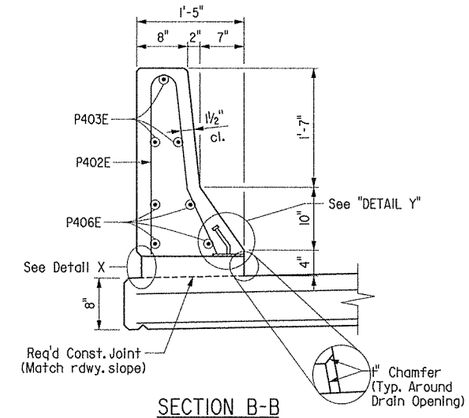
Note: For Bar List, see Dwg. No. 55585.

Note: For DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL, see Dwg. No. 55592.



DETAIL X

No Scale



SECTION B-B

Scale: 1" = 1'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11339
LARRY W. MILLER
3-27-14

BRIDGE ENGINEER

SHEET 4 OF 4
DETAILS OF 487'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

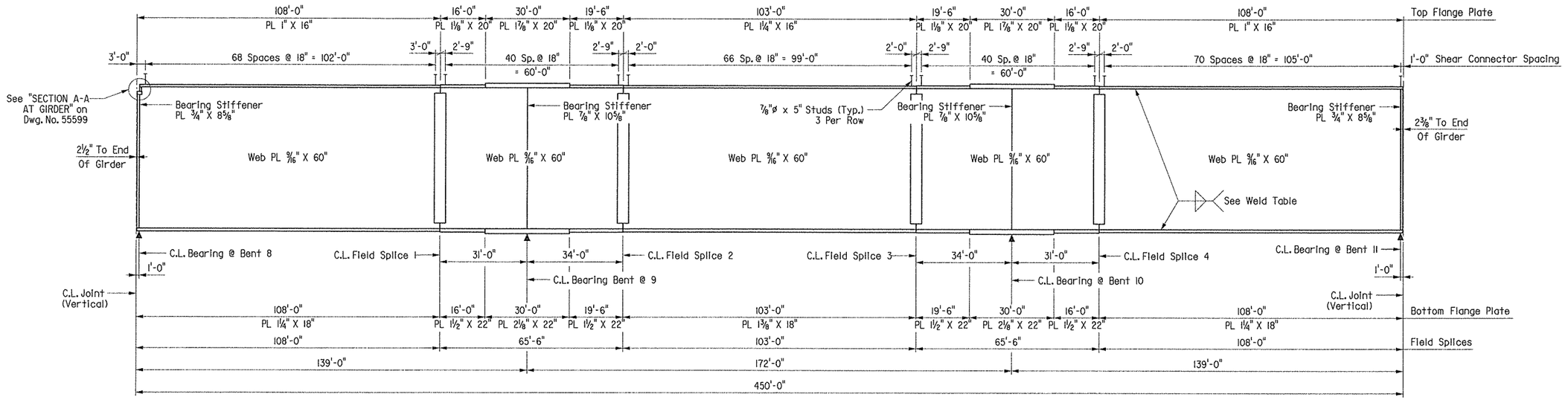
DRAWN BY: BEG DATE: 02-14 FILENAME: b070240_S24.dgn

CHECKED BY: LWM DATE: 03-07-14 SCALE: As Shown

DESIGNED BY: BEG DATE: 02-14

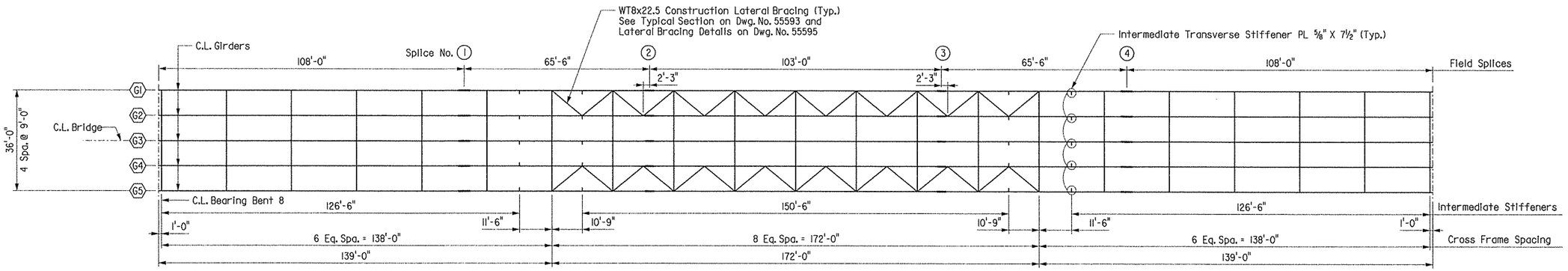
BRIDGE NO. 07316 DRAWING NO. 55587

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	97	172
				(1) 07316		SPAN DETAILS		55588



GIRDER ELEVATION

No Scale



FRAMING PLAN

No Scale

NOTES

Bolted field splices shown may be eliminated or shop welded splices may be substituted with approval of the Engineer. Payment will be made on the basis of the plan quantities.

All plates are AASHTO M270 Grade 50W.

For additional information, see Drawing Nos. 55590 & 55593 - 55595.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11339
LARRY W. MILLER
8/29/14

BRIDGE ENGINEER

SHEET 1 OF 5
DETAILS OF 450'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

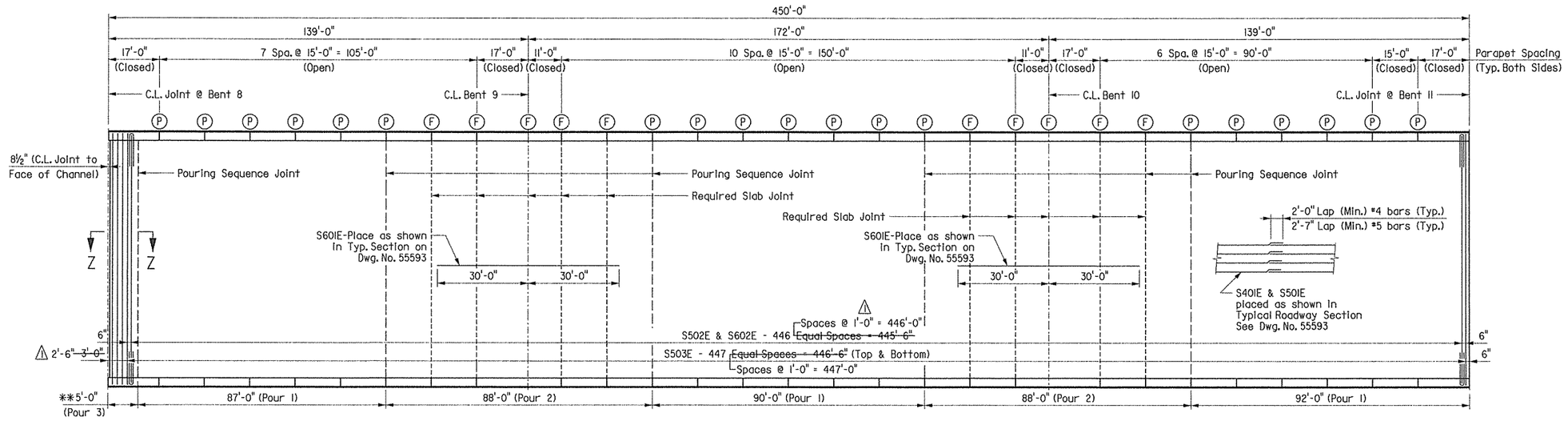
DRAWN BY: VCS DATE: 2-14 FILENAME: b070240_S3l.dgn
CHECKED BY: LWM DATE: 03-07-14 SCALE: NONE
DESIGNED BY: DLM DATE: 1-14

BRIDGE NO. 07316 DRAWING NO. 55588

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
12-09-14				6	ARK.			
				JOB NO.		070240	98	172
				(1) 07316		SPAN DETAILS		55589

(P) C.L. Partial Depth Parapet Joint (¼" to 1" max.). Stop 1'-2" from top of slab.

(F) C.L. Full Depth Parapet Joint (¼" to 1" max.). Stop 4" from top of slab.



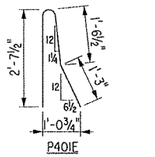
REINFORCING PLAN & POURING SEQUENCE

No Scale

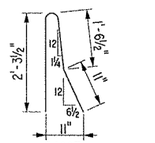
BAR LIST

Bending Diagrams
(Dimensions are out to out of bars.)

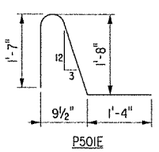
Mark	No. Req'd.	Length	Pin Dia.
S401E	348	39'-4"	Str.
S501E	448	58'-6"	Str.
S502E	446	43'-6"	3"
S503E	898	42'-10"	Str.
S504E	20	7'-8"	Str.
S601E	116	60'-0"	Str.
S602E	894	13'-4"	5 1/4"
P401E	1432	5'-6"	3"
P402E	368	4'-10"	3"
P403E	176	14'-7"	Str.
P404E	40	16'-7"	Str.
P405E	28	10'-7"	Str.
P406E	48	37'-2"	Str.
P407E	32	31'-9"	Str.
P501E	1432	4'-8"	3 3/4"



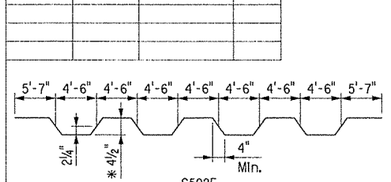
P401E



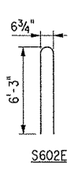
P402E



P501E

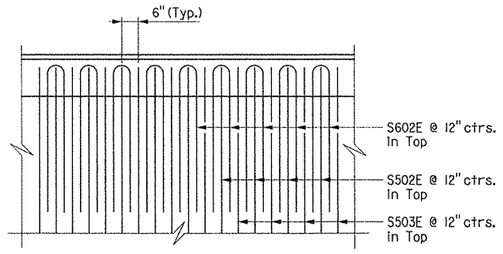


S502E



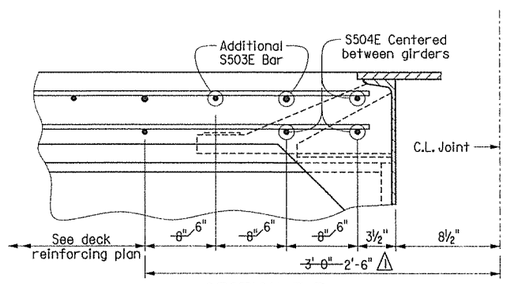
S602E

*½" overtolerance
no undertolerance



DETAIL A

No Scale



SECTION Z-Z

No Scale

** Closure pours at the finger joints shall be made after all incremental pours on the unit have been placed. 48 hours shall elapse between the last incremental pour and the closure pours.

Note: Pours must be made in order as numbered. Pours with the same number may be placed simultaneously or separately. 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between the end of a pour and the start of the adjacent pour. Any railing pours made before the entire slab unit has been placed must be approved by the Engineer. Concrete in bridge superstructure shall be consolidated for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent.

The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.

Required slab joints and pouring sequence joints shall align with parapet open joint at the gutterline.

For slab joint detail, see Dwg. No. 55593.

⚠ Revised spacing of transverse bars. LWM 12-09-14

STATE OF ARKANSAS
Larry W. Miller
REGISTERED PROFESSIONAL ENGINEER
No. 11339
9-2-14
LARRY W. MILLER
BRIDGE ENGINEER

SHEET 2 OF 5
DETAILS OF 450'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

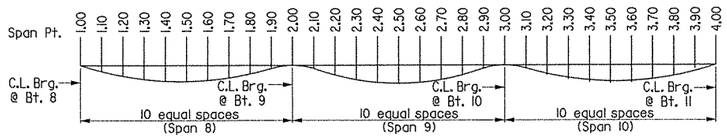
DRAWN BY: VCS DATE: 2-14 FILENAME: b070240_S32.dgn
CHECKED BY: LWM DATE: 03-07-14 SCALE: NONE
DESIGNED BY: DLM DATE: 1-14

BRIDGE NO. 07316 DRAWING NO. 55589

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	gcj	172
				(1) 07316		SPAN DETAILS		55590

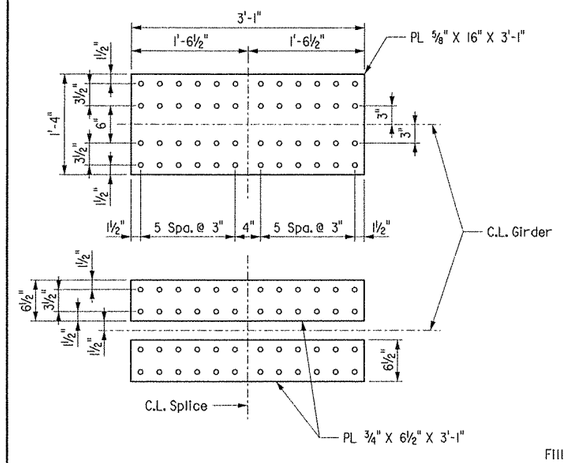
LOAD DISTRIBUTION TO GIRDERS:

	Girders 1 & 5	Girders 2 - 4
Dead Loads: To Girder	790 PLF + 1.12 (wt./ft. of Girder)	826 PLF + 1.12 (wt./ft. of Girder)
Dead Loads: To Composite Girder	422 PLF, Includes 160 PLF Future Wearing Surface	

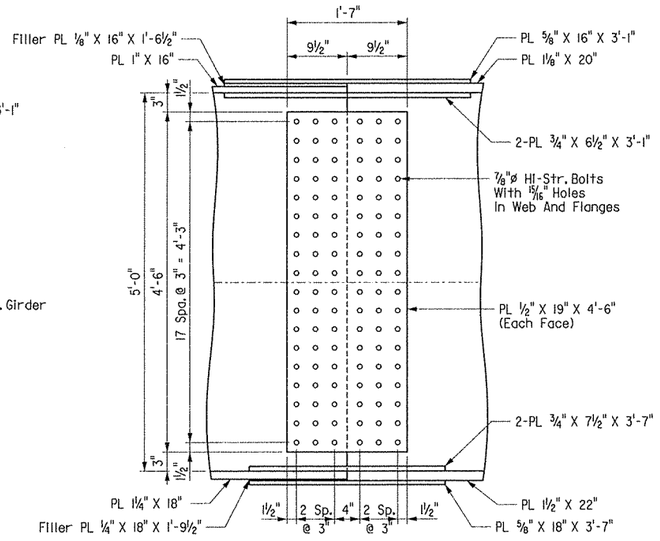


DEAD LOAD DEFLECTION DIAGRAM

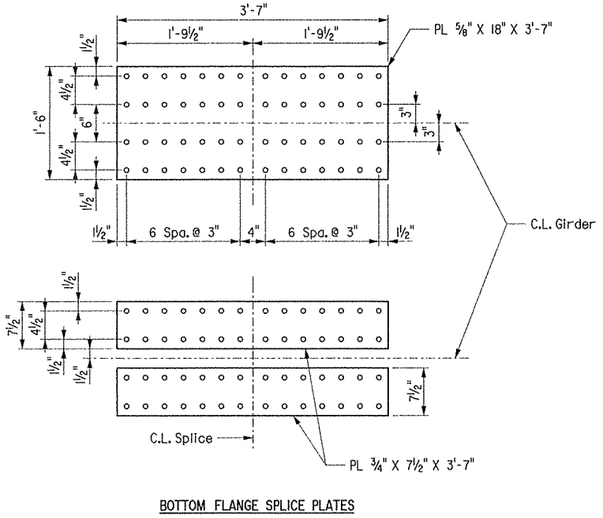
No Scale



TOP FLANGE SPLICE PLATES



WEB SPLICE PLATES



BOTTOM FLANGE SPLICE PLATES

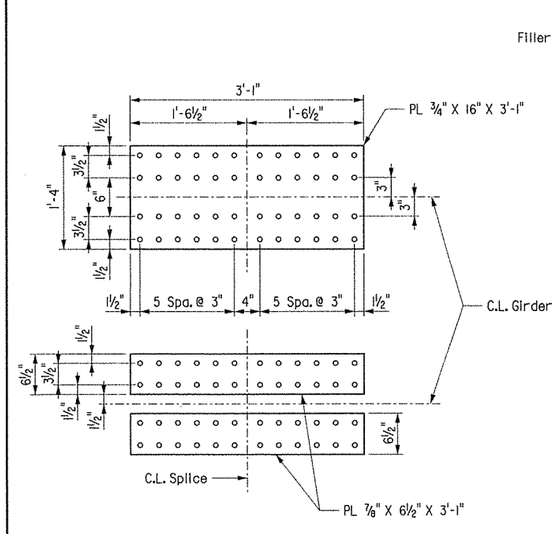
FIELD SPLICE NOs. 1 & 4

Scale: 1" = 1'-0"
(Splice 1 shown. Splice 4 is opposite hand.)

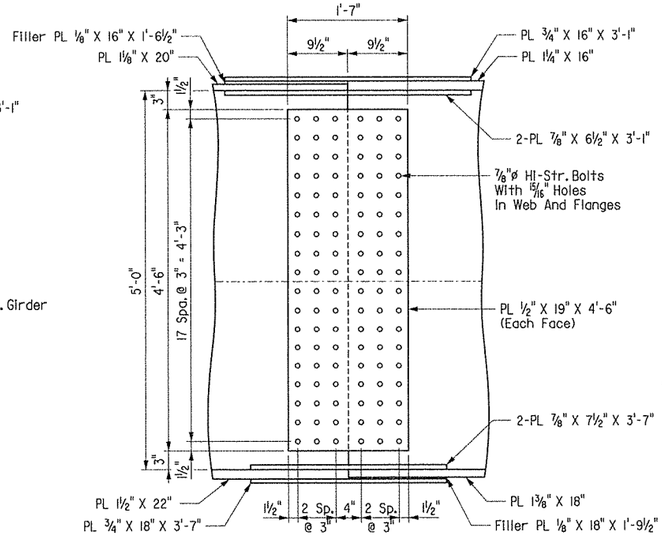
TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Camber for Dead Load Deflection plus vertical curve +/- ¼" tolerance.
Deflections shown are off a chord from C.L. Brg. to C.L. Brg.
Vertical curve corrections not included. Negative sign (-) indicates upward deflection.

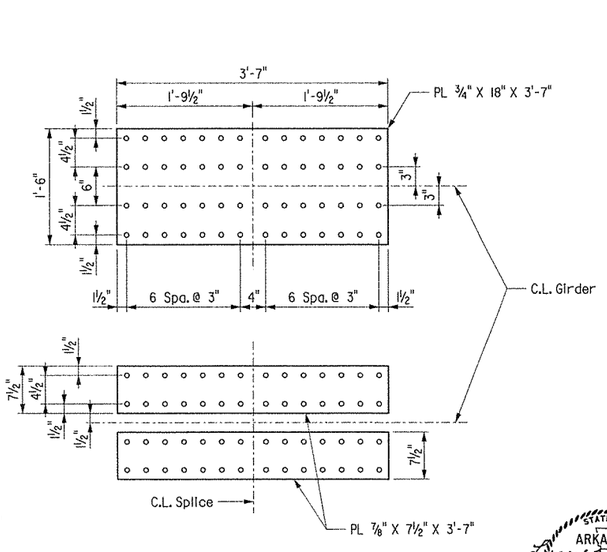
SPAN NO.	POINT OF DEFLECTION	INTERIOR GIRDER Structural Steel	INTERIOR GIRDER Structural Steel +Slab	INTERIOR GIRDER Structural Steel +Slab +Para. Rail	EXTERIOR GIRDER Structural Steel	EXTERIOR GIRDER Structural Steel +Slab	EXTERIOR GIRDER Structural Steel +Slab +Para. Rail
8	1.00	0.000	0.000	0.000	0.000	0.000	0.000
	1.10	0.239	1.049	1.153	0.237	1.027	1.132
	1.20	0.423	1.855	2.038	0.418	1.815	2.000
	1.30	0.550	2.416	2.655	0.544	2.365	2.607
	1.40	0.603	2.653	2.917	0.596	2.598	2.864
	1.50	0.571	2.522	2.774	0.564	2.468	2.722
	1.60	0.476	2.116	2.328	0.471	2.071	2.285
	1.70	0.332	1.488	1.637	0.327	1.454	1.605
	1.80	0.185	0.844	0.928	0.182	0.824	0.909
	1.90	0.065	0.310	0.340	0.064	0.303	0.333
9	2.00	0.000	0.000	0.000	0.000	0.000	0.000
	2.10	0.061	0.192	0.220	0.060	0.185	0.214
	2.20	0.224	0.801	0.901	0.220	0.777	0.878
	2.30	0.406	1.504	1.682	0.401	1.466	1.646
	2.40	0.542	2.034	2.271	0.536	1.986	2.225
	2.50	0.594	2.235	2.493	0.586	2.182	2.443
	2.60	0.542	2.034	2.271	0.536	1.986	2.225
	2.70	0.406	1.504	1.682	0.401	1.466	1.646
	2.80	0.224	0.801	0.901	0.220	0.777	0.878
	2.90	0.061	0.192	0.220	0.060	0.185	0.214
10	3.00	0.000	0.000	0.000	0.000	0.000	0.000
	3.10	0.065	0.310	0.340	0.064	0.303	0.333
	3.20	0.185	0.844	0.928	0.182	0.824	0.909
	3.30	0.332	1.488	1.637	0.327	1.454	1.605
	3.40	0.476	2.116	2.328	0.471	2.071	2.285
	3.50	0.571	2.522	2.774	0.564	2.468	2.722
	3.60	0.603	2.653	2.917	0.596	2.598	2.864
	3.70	0.550	2.416	2.655	0.544	2.365	2.607
	3.80	0.423	1.855	2.038	0.418	1.815	2.000
	3.90	0.239	1.049	1.153	0.237	1.027	1.132
	4.00	0.000	0.000	0.000	0.000	0.000	0.000



TOP FLANGE SPLICE PLATES



WEB SPLICE PLATES



BOTTOM FLANGE SPLICE PLATES

FIELD SPLICE NOs. 2 & 3

Scale: 1" = 1'-0"
(Splice 2 shown. Splice 3 is opposite hand.)

NOTES

All field splice bolts shall be ⅞" diameter H.S. Bolts.

All field splice plates shall be AASHTO M270, Gr. 50W steel.

STATE OF ARKANSAS
LARRY W. MILLER
REGISTERED PROFESSIONAL ENGINEER
No. 11339
8/29/14
LARRY W. MILLER
BRIDGE ENGINEER

SHEET 3 OF 5
DETAILS OF 450'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: VCS DATE: 2-14 FILENAME: b070240_S33.dgn
CHECKED BY: LWM DATE: 03-07-14 SCALE: As Shown
DESIGNED BY: DLM DATE: 1-14

BRIDGE NO. 07316 DRAWING NO. 55590

(P) C.L. Partial Depth Parapet Joint (¼" to 1" max.). Stop 1'-2" from top of slab.

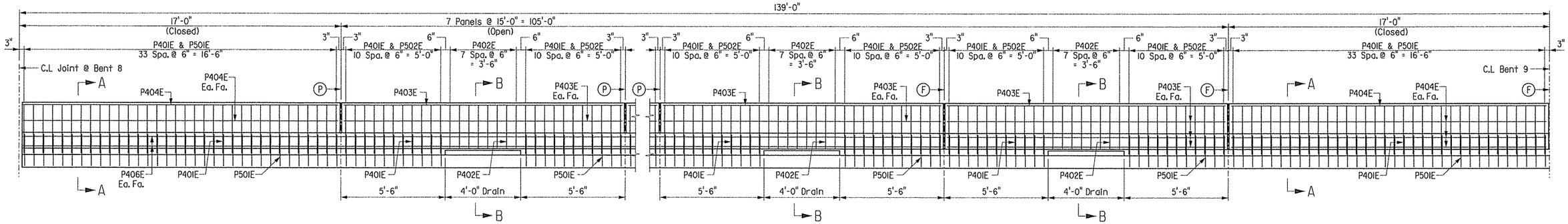
(F) C.L. Full Depth Parapet Joint (¼" to 1" max.). Stop 4" from top of slab.

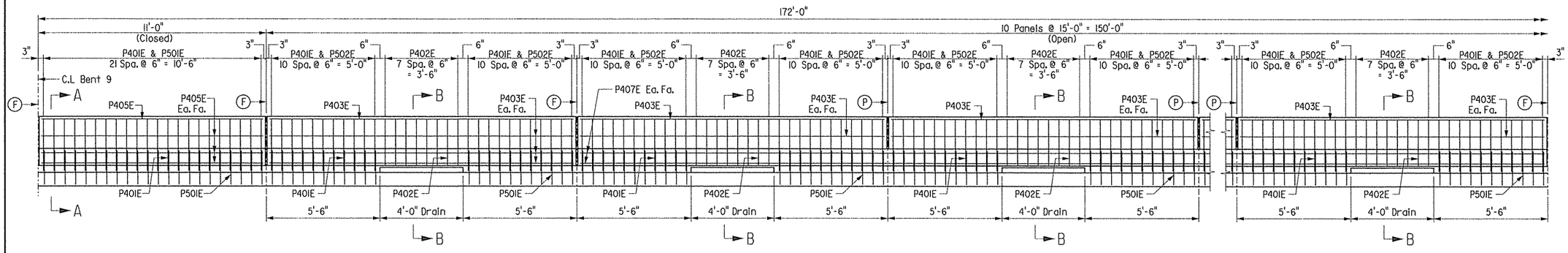
Minimum lap for horizontal #4 parapet bars = 2'-3"

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		070240	100	172

(1) 07316 SPAN DETAILS 55591





DETAILS OF PARAPET RAIL - BOTH SIDES OF BRIDGE

Scale: ⅜" = 1'-0"

Note: All dimensions shown are taken along gutterline of bridge.

Note: For Sections A-A & B-B, see Dwg. No. 55592.

Note: For Bar List, see Dwg. No. 55589.

Note: For DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL, see Dwg. No. 55592.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11339
LARRY W. MILLER
8/27/14

BRIDGE ENGINEER

SHEET 4 OF 5
DETAILS OF 450'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: BEG DATE: 02-14
CHECKED BY: LWM DATE: 03-07-14
DESIGNED BY: BEG DATE: 02-14

FILENAME: b070240_S34.dgn
SCALE: As Shown

BRIDGE NO. 07316 DRAWING NO. 55591

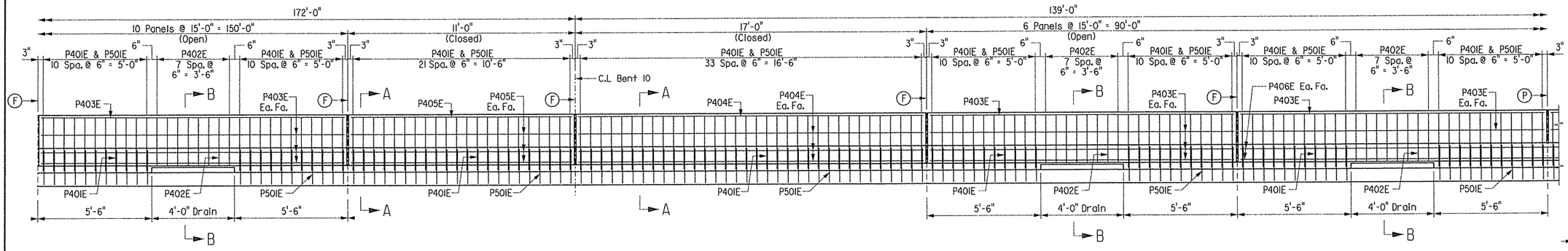
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

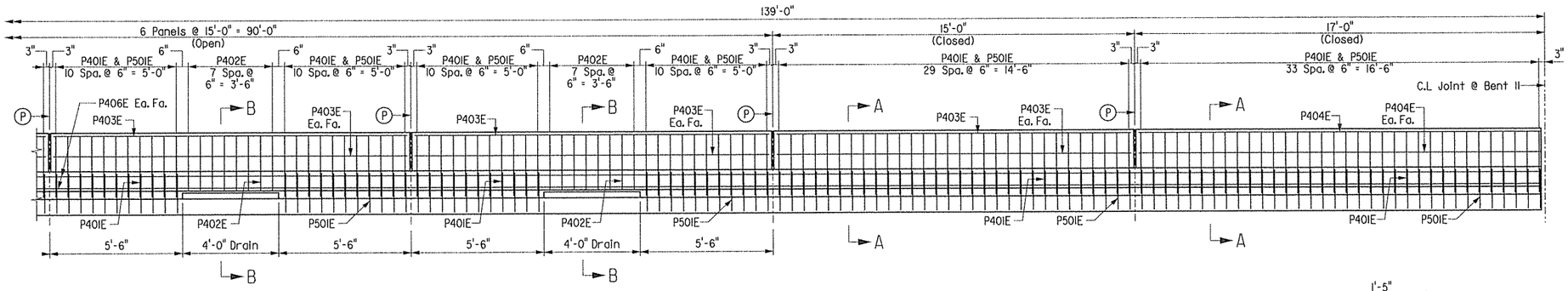
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		070240	101	172
(1) 07316		SPAN DETAILS		55592

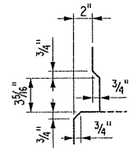
(P) C.L. Partial Depth Parapet Joint (¼" to 1" max.). Stop 1'-2" from top of slab.

(F) C.L. Full Depth Parapet Joint (¼" to 1" max.). Stop 4" from top of slab.

Minimum lap for horizontal #4 parapet bars = 2'-3"







DETAIL X

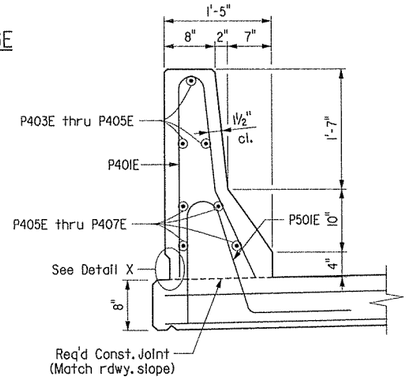
No Scale

Note: All dimensions shown are taken along gutterline of bridge.

Note: For Bar List, see Dwg. No. 55589.

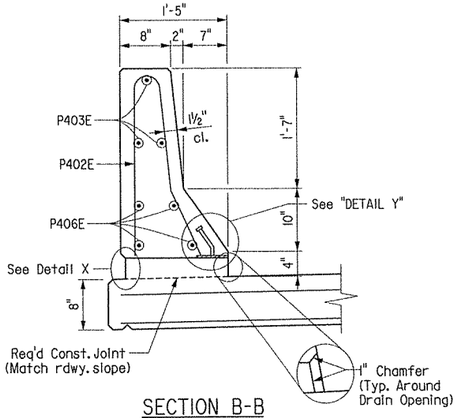
DETAILS OF PARAPET RAIL - BOTH SIDES OF BRIDGE

Scale: ⅜" = 1'-0"



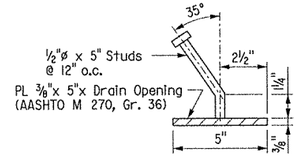
SECTION A-A

Scale: 1" = 1'-0"



SECTION B-B

Scale: 1" = 1'-0"



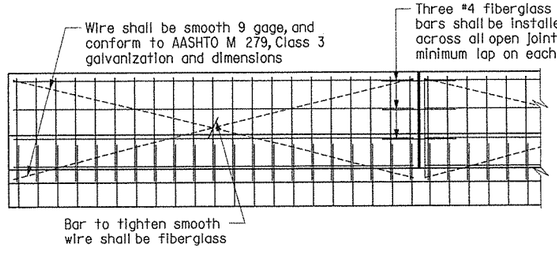
DETAIL Y

No Scale

Note:

Parapet Studs shall be 5" long, granular flux filled, solid fluxed, or equal, and automatically end welded to the plate. Studs and plate shall meet the requirements of Section 807. Studs and plate shall be measured and paid for as "STRUCTURAL STEEL IN PLATE GIRDER SPANS (M270, Gr. 50W)".

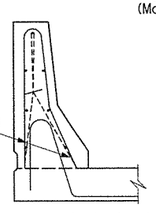
The surfaces of the ⅜" Plates which will not be in contact with concrete shall be painted in accordance with Section 638, or as approved by the Engineer. Only one coat is required and shall be applied in the fabricator's shop. Painting will not be paid for directly, but will be considered subsidiary to "STRUCTURAL STEEL IN PLATE GIRDER SPANS (M270, Gr. 50W)".



All panels shall be braced as shown to prevent racking. All open joints shall be sawed as soon as practical to a minimum width of ¼". To control cracking before sawing all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.

For actual placement of reinforcing steel, see parapet details.

All smooth wire bracing shall be placed on the inside faces of the reinforcing.



The extruded parapet shall conform to the horizontal and vertical lines shown on the plans or as directed by the Engineer and shall present a smooth, uniform appearance and texture. Exposed surfaces may be given a light brush finish or a Class 3 Textured Coating Finish in place of Class 2 Rubbed Finish.

DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

No Scale

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11339 LARRY W. MILLER 8/29/14

BRIDGE ENGINEER

SHEET 5 OF 5
DETAILS OF 450'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

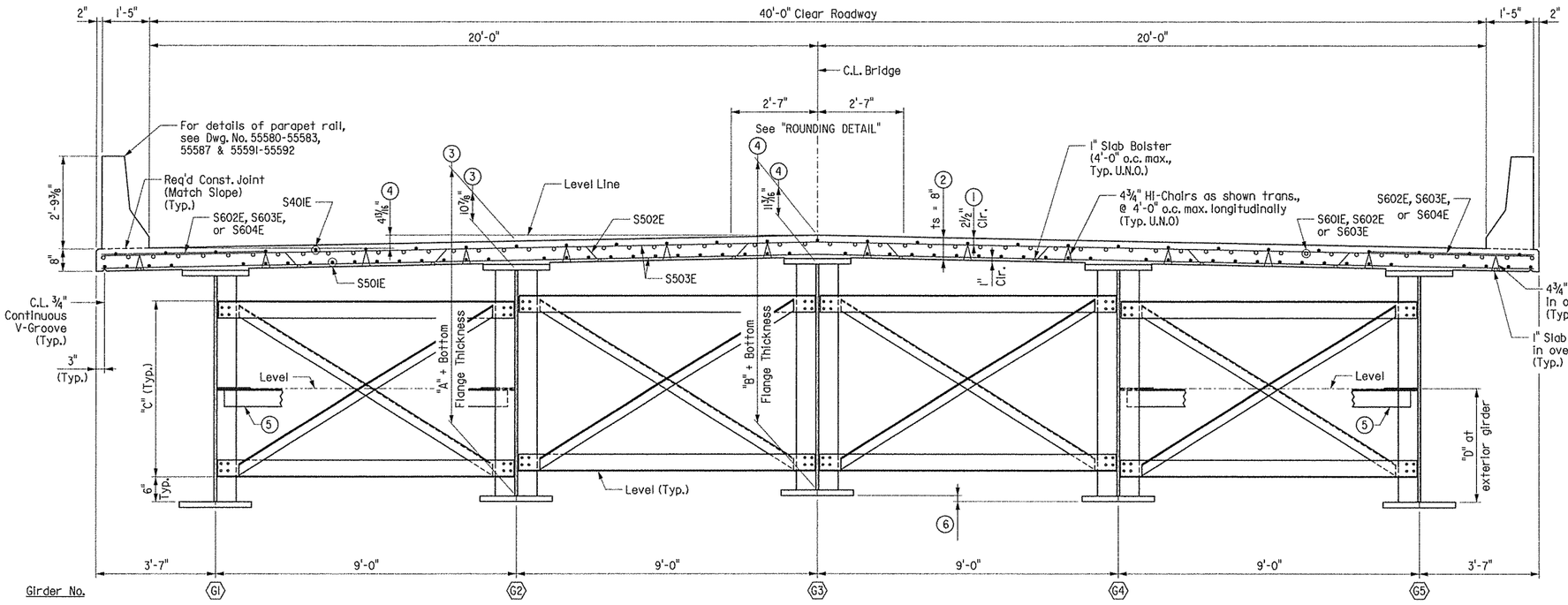
DRAWN BY: BEG DATE: 02-14 FILENAME: b070240_S35.dgn

CHECKED BY: LWM DATE: 03-07-14 SCALE: As Shown

DESIGNED BY: BEG DATE: 02-14

BRIDGE NO. 07316 DRAWING NO. 55592

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	102	172
				(1) 07316		SPAN DETAILS		55593



TYPICAL SECTION

(Looking Ahead)
Scale: ½" = 1'-0"

NOTES:

One Epoxy Coated #5 bar in the top and one Epoxy Coated #5 bar in the bottom may be substituted for each bar S502E. Payment will be based on the weight of bar S502E.

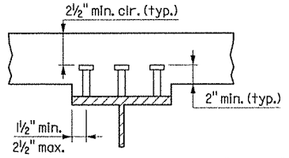
Class 1 Protective Surface Treatment shall be applied to the Roadway Surface and the Face and Top of Concrete Parapet Rail.

All bars designated with an E suffix are to be epoxy coated.

SLAB REINFORCING:

Transverse:
- S602E, S603E or S604E @ 12" Centers (Top in Cantilevers)
- S502E @ 12" Centers (Bent up over girders)
- S503E @ 12" Centers (Top & Bottom)
- S504E thru S557E @ 6" Centers (Top & Bottom)

Longitudinal:
- S401E @ 18" Centers (Top)
- S501E Place as shown (Bottom)
- S601E, S602E, or S603E @ 9" Centers (Top)



Stud Shear Connectors shown shall be ⅞" dia. x 5" long, granular flux filled, solid fluxed or equal, and automatically end welded to the girder flange in accordance with the recommendations of the Manufacturer. ¾" dia. studs may be used in place of the ⅞" dia. studs shown, at the ratio of 1.361 - ¾" dia. studs in place of one ⅞" dia. stud. ⅞" dia. studs will be used as basis for measurement of structural steel in shear connectors. Maximum stud spacing = 24".

SHEAR CONNECTOR DETAIL

No Scale

TABLE OF VARIABLES

	"A"	"B"	"C"	"D"
690'-0" UNIT	7'-7⅞"	7'-8⅜"	5'-6"	3'-4½"
487'-0" UNIT	5'-10⅞"	5'-11³⁄₁₆"	3'-9"	2'-6"
450'-0" UNIT	5'-10⅞"	5'-11³⁄₁₆"	3'-9"	2'-6"

(1) TOLERANCE:
Minus: ¼"
Plus: Equal to amount of slab thickening used to meet slab thickness tolerance. See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE WHEN REMOVABLE DECK FORMING IS USED".

(2) See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE WHEN REMOVABLE DECK FORMING IS USED".

(3) Measured at C.L. Bearing & C.L. Girder

(4) Measured to Working Point, see "ROUNDING DETAIL"

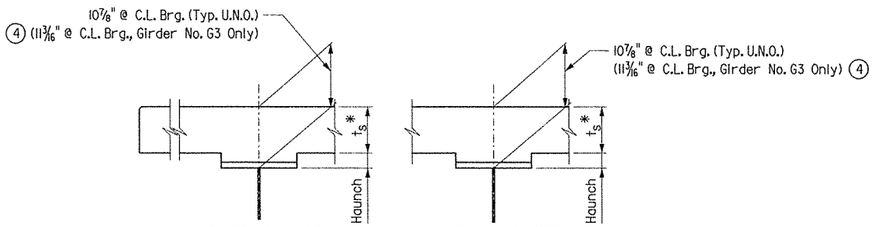
(5) Construction Lateral Bracing (exterior bays only). See Framing Plans for Location. See Details on Dwg. No. 55595.

(6) 2³⁄₁₆" (Typ. Exterior Bays)
1⅞" (Typ. Interior Bays)

SLAB JOINT DETAIL

No Scale

½" x 1" Type 3 or 4 Joint Sealer. See Subsection 501.02 (h)(2). Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab joints shall extend to the outside edge of the deck slab. Slab joints shall be installed before the parapet railing is poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set up to allow the sawing of joint without damage to the slab. Slab joints shall be placed at all Pouring Sequence Construction Joints and Required Slab Joint locations. The joint sealer shall extend across the deck slab (gutterline to gutterline). Slab joints shall align with parapet open joints.



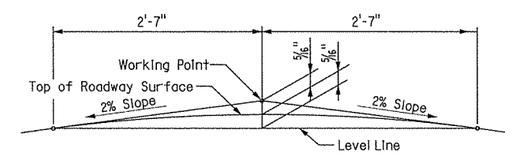
Note: ts = slab thickness as shown on "TYPICAL SECTION".
*Tolerance when removable deck forming is used is +½", -¼".
Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE WHEN REMOVABLE DECK FORMING IS USED

No Scale

Haunch dimension may vary within the following limits to maintain the grade and slab thickness tolerance; Minimum - occurs when the top flange is ⅝" below the bottom reinforcing steel; Maximum - top flange thickness plus 2¾". No increase in concrete and structural steel quantities will be made to maintain tolerances.

Tolerances shown are applicable only when removable deck forming is used. See Std. Dwg. No. 55005 for tolerances when permanent steel deck forms are used. Payment for concrete shall be based on removable deck forming.



NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL

No Scale

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13339
LARRY W. MILLER
8/29/14
BRIDGE ENGINEER

SHEET 1 OF 3
COMMON DETAILS OF CONTINUOUS COMPOSITE PLATE GIRDER UNITS OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION

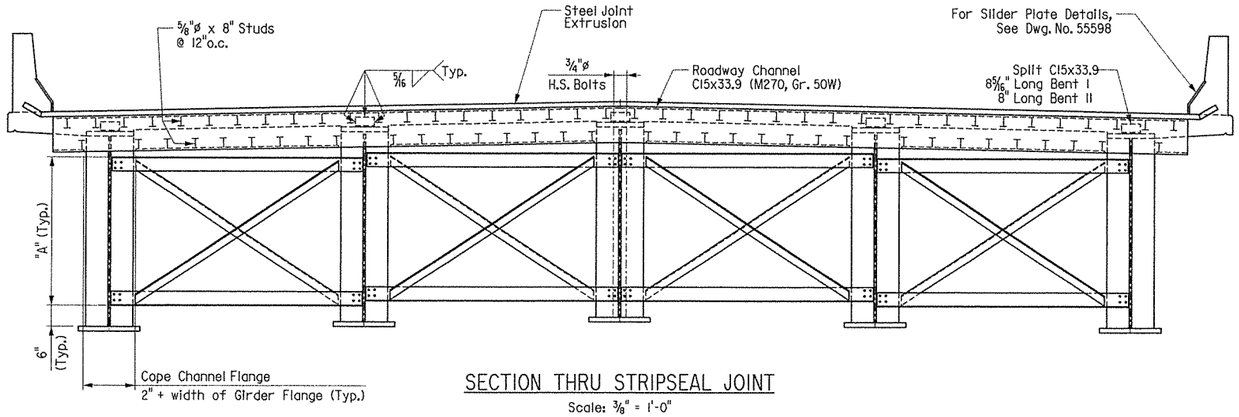
LITTLE ROCK, ARK.

DRAWN BY: DLM DATE: 01-14 FILENAME: b070240_S41.dgn
CHECKED BY: LWM DATE: 03-07-14 SCALE: As Shown
DESIGNED BY: DLM DATE: 12-13

BRIDGE NO. 07316 DRAWING NO. 55593

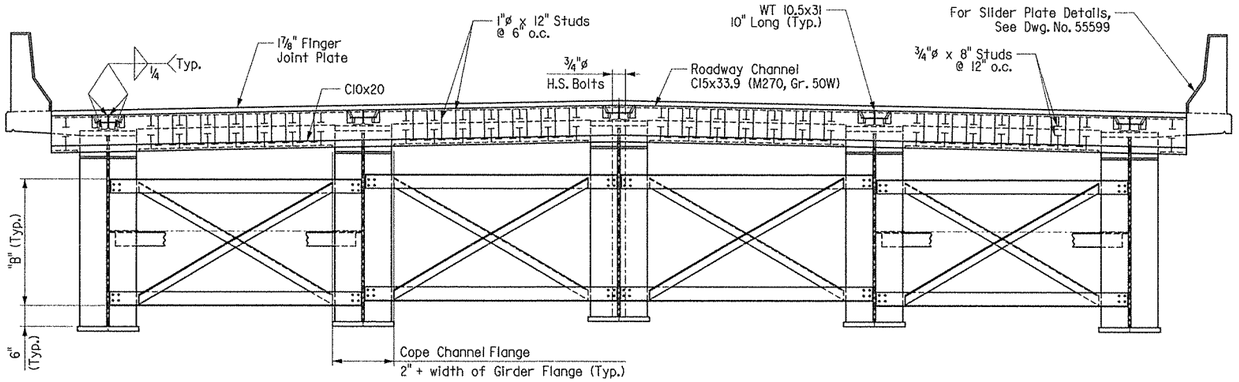
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	103	172
				(1) 07316		SPAN DETAILS		55594

Expansion Devices:
Roadway Channel C15x33.9
Neoprene Strip Seal with Steel Joint Extrusion
Connection Split C15x33.9
Detail Device 1/8" high & provide 1/4" shims
using 1 - 1/8" PL & 2 - 1/16" PLs



SECTION THRU STRIPSEAL JOINT

Scale: 3/8" = 1'-0"



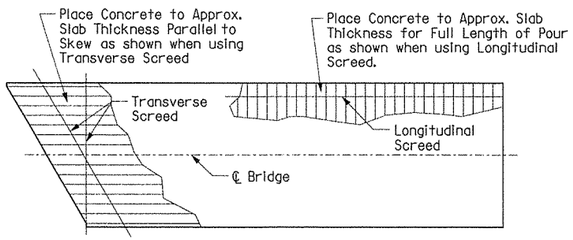
SECTION THRU FINGER JOINT

Scale: 3/8" = 1'-0"

Expansion Devices:
Roadway Channel C15x33.9
Channel Conn. - WT 10.5x31
Finger Joint - 5" Movement
Detail Device 1/8" high & provide 1/4" shims
using 1 - 1/8" PL & 2 - 1/16" PLs

TABLE OF VARIABLES

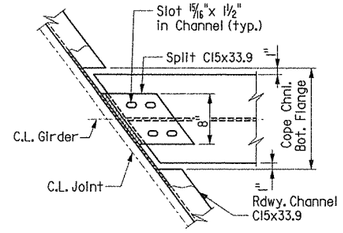
	"A"	"B"
690'-0" UNIT	5'-6"	4'-9"
487'-0" UNIT	3'-9"	3'-0"
450'-0" UNIT	3'-9"	3'-0"



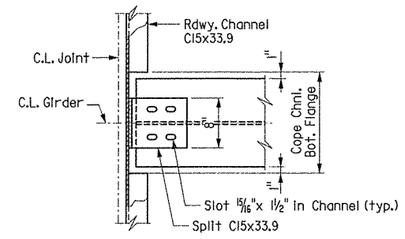
Note: At the Contractor's option, the Transverse Screed may be placed parallel to the skew or perpendicular to C.L. Bridge

CONCRETE PLACEMENT PROCEDURE

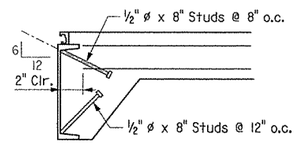
(690' Unit Only)
No Scale



ROADWAY CHANNEL CONNECTION DETAIL @ BENT I



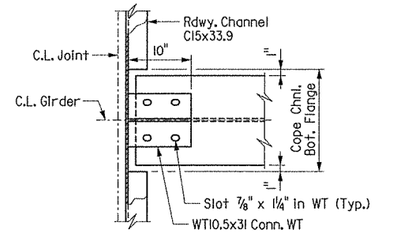
ROADWAY CHANNEL CONNECTION DETAIL @ BENT II



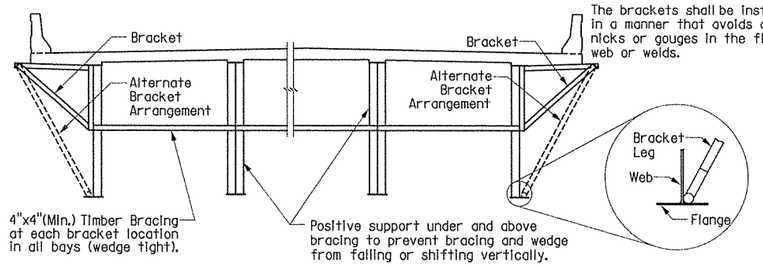
Note: As an alternate to 5/8" ø studs, 1/2" ø x 8" studs spaced as shown may be used. Use weight of 5/8" ø stud as basis of measurement of structural steel in anchors.

DETAIL OF ALTERNATE ANCHORS

(Bents I & II)
No Scale



CHANNEL CONNECTION DETAIL @ BENT 5 & 8



Note: If a transverse finishing machine is used, the rail shall be supported directly over the exterior girders, or as an alternate, the rail may be supported by the overhang brackets if the above strutting system is used. The strutting system may be omitted if 9/16" x6" web stiffeners are welded to the insides of the exterior girders at the location of each bracket or if the alternate bracket arrangement shown above is used. The Alternate Bracket arrangement shall extend down to the junction of the web and bottom flange. The stiffener shall conform to the cross frame connection detail shown on drawing No. 55595. No direct payment will be made for brackets, timber bracing, supports, or welded stiffeners. Payment shall be subsidiary to "Structural Steel in Plate Girder Spans (M270. Gr. 50W)."

SCREED RAIL SUPPORT

No Scale

SHEET 2 OF 3
COMMON DETAILS OF CONTINUOUS COMPOSITE PLATE GIRDER UNITS
OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

STATE OF ARKANSAS
Larry W. Miller
REGISTERED PROFESSIONAL ENGINEER
No. 11339
8/29/14
LARRY W. MILLER

BRIDGE ENGINEER

DRAWN BY: DLM DATE: 01-14 FILENAME: b070240_S42.dgn
CHECKED BY: LWM DATE: 03-07-14 SCALE: As Shown
DESIGNED BY: DLM DATE: 12-13

BRIDGE NO. 07316 DRAWING NO. 55594

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	104	172
				(1) 07316		SPAN DETAILS		55595

SUPERSTRUCTURE GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, 2014 edition, with applicable supplemental specifications and special provisions.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications 6th Edition (2012).

LIVE LOADING: HL-93

MATERIALS AND STRENGTHS:

Class S(AE) Concrete	fc	=	4,000 psi
Reinforcing Steel (AASHTO M31 or M332 Type A, Gr. 60)	Fy	=	60,000 psi
Structural Steel (AASHTO M270, Gr. 50W)	Fy	=	50,000 psi
Structural Steel (AASHTO M270, Gr. 36)	Fy	=	36,000 psi

Elastomeric bearings shall be firmly seated in accordance with Subsection 808.08 of the specifications. This work is considered subsidiary to the item ELASTOMERIC BEARINGS and will not be paid for directly.

STRUCTURAL STEEL:
All structural steel shall be AASHTO M270, Gr. 50W unless otherwise noted and shall be paid for as STRUCTURAL STEEL IN PLATE GIRDER SPANS (M270, Gr. 50W). Structural steel completely embedded in concrete may be AASHTO M270, Gr. 36. All surfaces shall be cleaned in accordance with Subsection 807.84(e), unless noted otherwise. Galvanized steel shall not be painted. For cleaning and painting of slider plates, see Dwg. Nos. 55598 & 55599. For cleaning requirements of external load plates of elastomeric bearings, see Dwg. No. 55600.

Girder web, flange and splice plates are considered main load carrying members and shall meet the Longitudinal Charpy V-Notch Test specified in Subsection 807.05 of the Standard Specifications. This work and material will not be paid for directly but are considered subsidiary to the item STRUCTURAL STEEL IN PLATE GIRDER SPANS (M270, Gr. 50W.)

Web, flange and flange splice plates for main members shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses.

All girders shall be blocked in their true position in the shop in groups of a minimum of three as specified in Subsection 807.54 (b)(2). Girders shall be blocked with their webs horizontal. The camber, length of sections, distance between bearings, and openings of joints shall be measured with the girders in their true position. This information shall become a part of the permanent records of this job. The component parts shall be match-marked in this assembly and these marks shall be shown on the erection diagram. All girder dimensions are based on a temperature of 60° F. A tolerance of ¼" +/- is allowed for camber.

Drawings show general features of design only. Shop drawings shall be made in accordance with Subsection 807.04, submitted, and approval secured before fabrication is begun.

Girder webs may be made by shop splicing with minimum lengths of 25'-0" for sections. Flange plates longer than 50'-0" may be made by shop splicing with minimum lengths of 25'-0" for sections. Material specifications and location of shop-welded splices, if any, shall be shown on the shop drawings. No additional payment will be made for these splices.

Groove welds in main plate girder members shall be Quality Control (Q.C.) tested by nondestructive testing, as required by the Standard Specifications. Fillet welds at flange to web plate connections shall be Q.C. tested by the magnetic particle method. All Quality Control (Q.C.) testing is at the Contractor's expense.

Cross frames and lateral construction bracing shall be installed as girders are erected. All bolts in cross frames, lateral construction bracing and field splices shall be installed and tightened in accordance with Subsection 807.71 prior to pouring the concrete deck, unless noted otherwise.

Requests for substitution of structural steel shapes shown with shapes of greater size must be submitted by the Contractor to the Engineer for approval. Steels of equal or greater strengths will be accepted only when shown on the approved shop drawings. Shapes and materials shown in the plans will be the basis of payment and no additional compensation will be made for any adjustments due to substitutions.

Field connections shall be bolted with high-strength bolts. Unless noted otherwise, bolts shall be ¾" diameter and open holes shall be 15/16". Holes for ¾" diameter bolts may be 15/16" diameter if a washer is supplied for use under both the nut and head of the bolt. Bolt spacing shall be 2½" for ¾" diameter bolts unless otherwise noted. Bolts shall be placed with heads on the outside face of exterior webs and the bottom of flanges.

All welding that is to be done during fabrication of structural steel, including temporary welds, shall be detailed on the shop drawings and submitted for approval. If additional welds are required, whether temporary or permanent, a formal request with detailed drawings shall be submitted to the Engineer for approval; however, additional welds used for attaching falsework support devices or screed rail supports to the structural steel that do not exceed the limitations of subsection 802.13 will not require approval prior to construction. All welding shall conform to Subsection 807.26.

Anchor bolts shall be galvanized according to Subsection 807.07 and shall be Grade 55.

CONCRETE:
Concrete shall be poured in the dry and all exposed corners shall be chamfered ¾" unless otherwise noted.

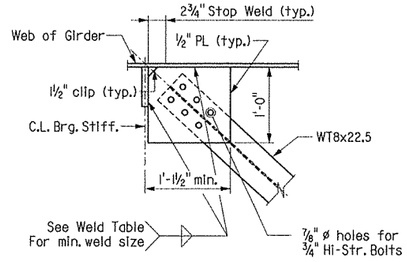
The superstructure details shown are for use when removable deck forming is used and are the basis for measurement of Class S(AE) Concrete. See Standard Drawing No. 55005 for allowable modifications and for tolerances when Permanent Steel Bridge Deck Forms are used.

Concrete in bridge superstructure shall be placed, consolidated and screeded off for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent.

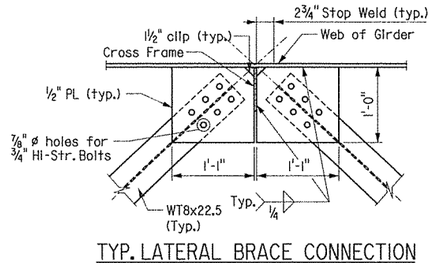
The concrete deck shall be given a fine finish in accordance with Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Movement of the finishing machine across new concrete shall be on planks placed on the surface and shall be prohibited for 72 hours after finishing the pour. Sufficient concrete must be placed ahead of the strike-off to fully load the girder. If a longitudinal strike-off is used, a vertical camber adjustment must be made in the strike-off to account for the future dead load deflection due to the railing.

A minimum of 72 hours shall elapse between completion of the deck and the pouring of the parapet railing. Any railing pours made before the entire deck has been placed and cured must be approved by the Engineer.

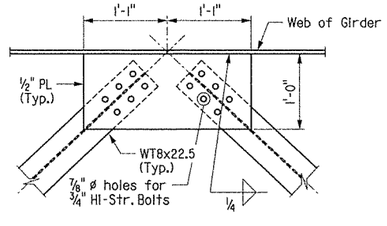
REINFORCING STEEL:
The reinforcing steel shall be accurately located in the forms and firmly held in place by steel wire supports sufficient in size and number to prevent displacement during the course of construction. The wire supports will not be paid for directly but will be considered subsidiary to the item Epoxy Coated Reinforcing Steel (Grade 60.)



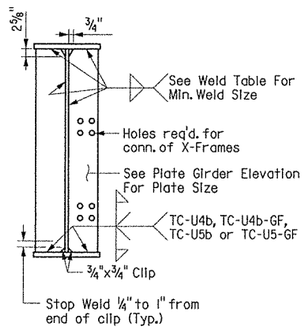
TYP. LATERAL BRACE CONN. AT BEARING
1"= 1'-0"



TYP. LATERAL BRACE CONNECTION AT CROSS-FRAME
1"= 1'-0"

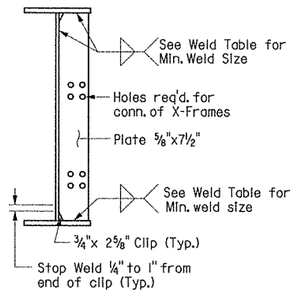


TYP. LATERAL BRACE CONNECTION AT MID-POINTS
1"= 1'-0"

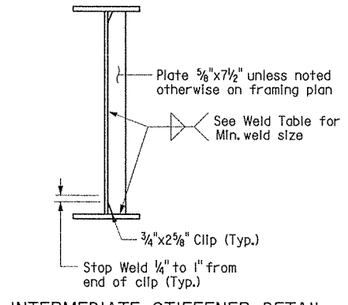


BEARING STIFFENER DETAIL

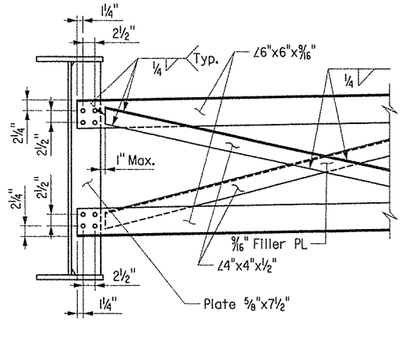
Note: Bearing stiffeners shall be fabricated to be vertical in final position.



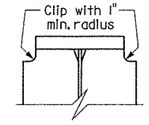
CROSS FRAME CONNECTION DETAIL



INTERMEDIATE STIFFENER DETAIL



TYPICAL CROSSFRAME CONNECTION
¾" = 1'-0"



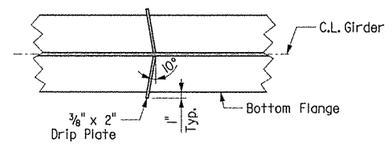
Note: If permanent steel bridge deck forms are used, the fabricator shall clip the plate as necessary to accomodate the deck form support.

PLATE CLIP DETAIL
Not to Scale

TABLE FOR WELD

Material Thickness of Thicker Part Joined (Inches)	Minimum Size of Fillet Weld (Inches)	Single Pass Weld Must Be Used
To ¾" Inclusive	¼"	
Over ¾"	5/16"	

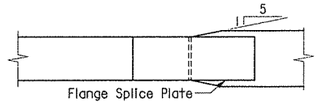
NOTE: When a fillet weld size, as shown on the plans, is larger than the minimum, the first pass shall be that specified for minimum size of fillet weld.



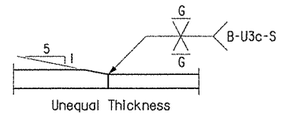
BOTTOM FLANGE DRIP PLATE
No Scale

Notes:
Bottom flange drip plate to be welded to both sides of each girder.

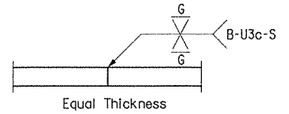
Locate drip plate 5'-0" from C.L. Bearing on high side of each interior bent and pier.



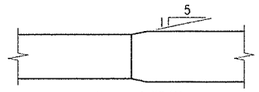
FIELD SPLICE AT UNEQUAL BOTTOM FLANGE WIDTHS
No Scale



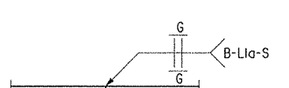
FLANGE SPLICE



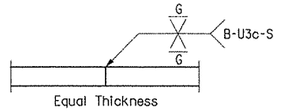
FLANGE SPLICE



FLANGE SPLICE



WEB SPLICE
(Use for webs < or = to ⅝" thick)



WEB SPLICE
(Use for webs > ⅝" thick)

DETAILS OF WELDED SPLICES
No Scale

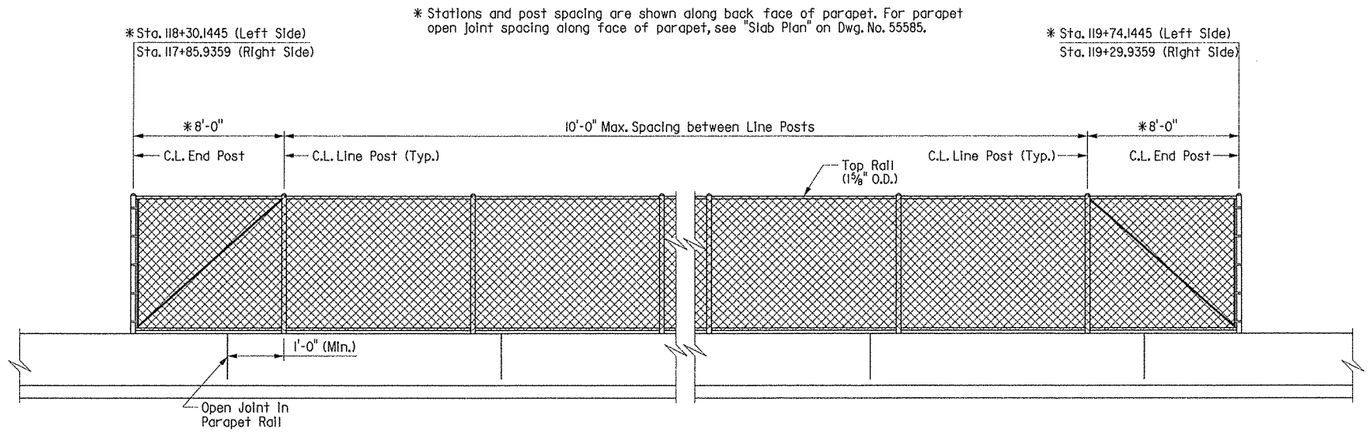
STATE OF ARKANSAS
Larry W. Miller
REGISTERED PROFESSIONAL ENGINEER
No. 11339
5/29/14
LARRY W. MILLER
BRIDGE ENGINEER

SHEET 3 OF 3
COMMON DETAILS OF CONTINUOUS COMPOSITE PLATE GIRDER UNITS
OUACHITA RIVER BRIDGE
ROUTE 51 SEC. 2
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

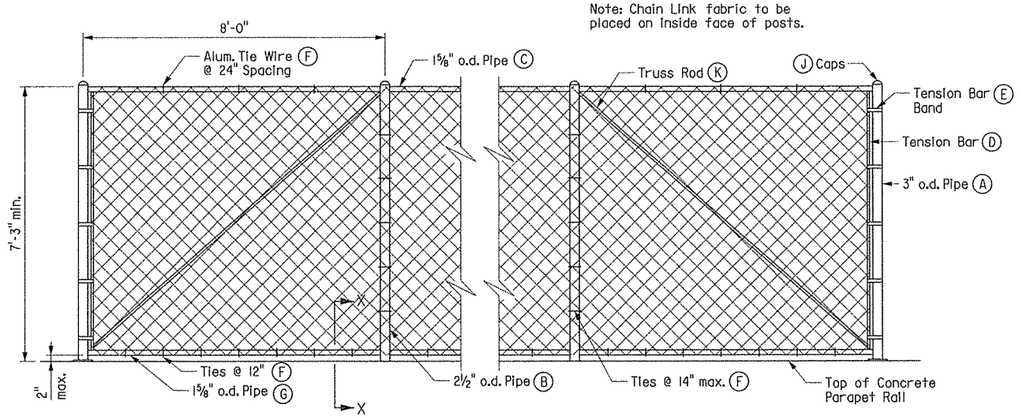
DRAWN BY: DLM DATE: 02-14 FILENAME: b070240_S43.dgn
CHECKED BY: LWM DATE: 03-07-14 SCALE: As Shown
DESIGNED BY: DLM DATE: 01-14

BRIDGE NO. 07316 DRAWING NO. 55595

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	105	172
				(1) 07316		CHAIN LINK FENCE		55596



LONGITUDINAL VIEW OF CHAIN LINK FENCE

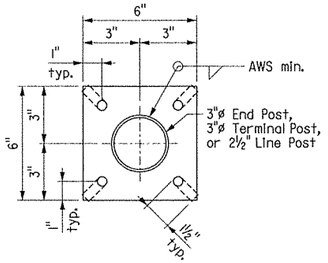


DETAIL OF CHAIN LINK FENCE

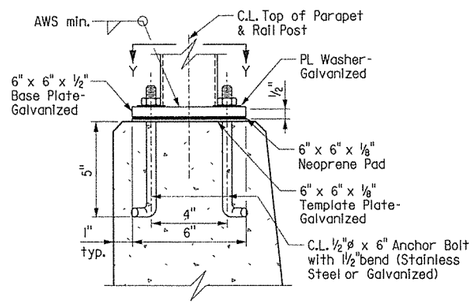
Note: Chain link fabric to be placed on inside face of posts.

(A) END POST: 3" O.D.
(B) LINE POST: 2½" O.D.
(C) TOP RAIL: 1⅝" O.D.
(D) TENSION BAR: ⅜"x ¾" Bar
(E) TENSION BAR BAND: ¾"x .074 w/⅝"ø x 1¼" Bolt (1 Band Top & Bottom w/15" max. spaces)
(F) TIE WIRE: 9 Ga. Aluminum
(G) BOTTOM RAIL: 1⅝" O.D.
(H) FABRIC: 9 Ga. 2" Mesh w/Knuckle or Twisting Selvage
(J) CAPS: All Posts shall be Capped & Shall Conform to ASTM F626-84
(K) TRUSS ROD: Min. of ⅝" Round with Tighteners and Fittings

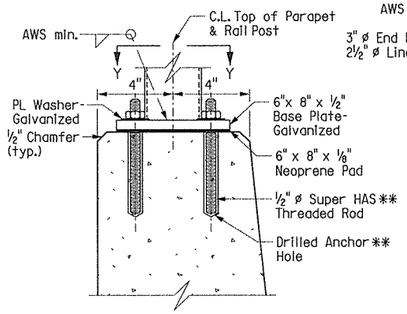
Note: Chain link fence attached to bridge shall be paid for as "7' Steel Chain Link Fence". For additional details of chain link fence, see Standard Drawing WF-3.



SECTION Y-Y



SECTION X-X



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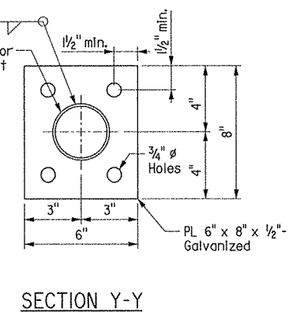

SECTION Y-Y

** HILTI HIT RE 500 Epoxy Adhesive Anchor System with 4½" embedment or approved equal.

The HILTI Epoxy Adhesive Anchor System shall be installed in accordance with Manufacturer's recommendations.

DETAILS OF ALTERNATE POST ANCHOR SYSTEM (EPOXY ADHESIVE ANCHORS)

STATE OF ARKANSAS
Larry W. Miller
REGISTERED PROFESSIONAL ENGINEER
No. 11339
8/29/14
LARRY W. MILLER
BRIDGE ENGINEER

DETAILS OF CHAIN LINK FENCE OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: VCS DATE: 2-14 FILENAME: b070240_Fl.dgn
CHECKED BY: LWM DATE: 03-07-14 SCALE: NONE
DESIGNED BY: VCS DATE: 2-14

BRIDGE NO. 07316 DRAWING NO. 55596

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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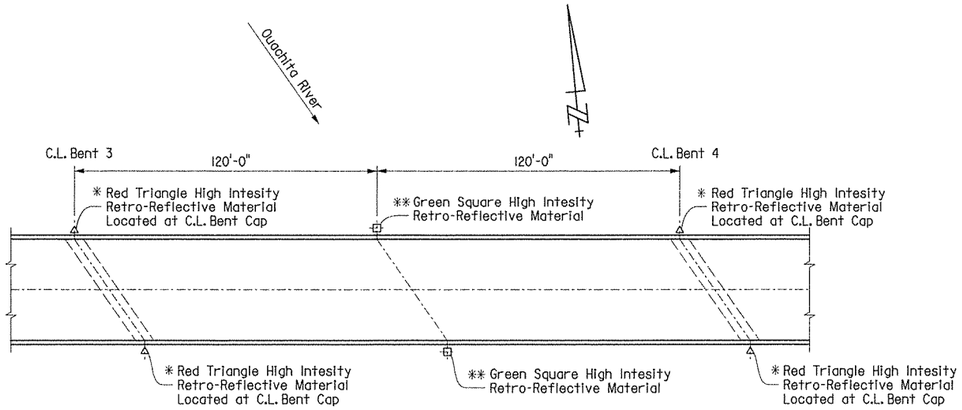
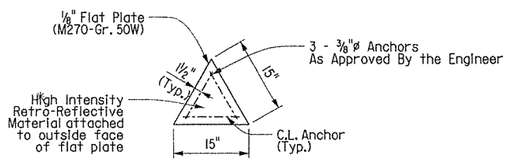
				JOB NO.		070240	106	172
				(1) 07316		REFLECTIVE PANELS		55597



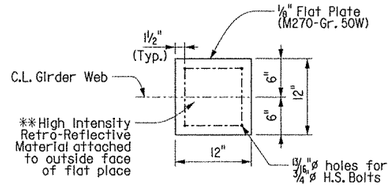
PLAN

No Scale



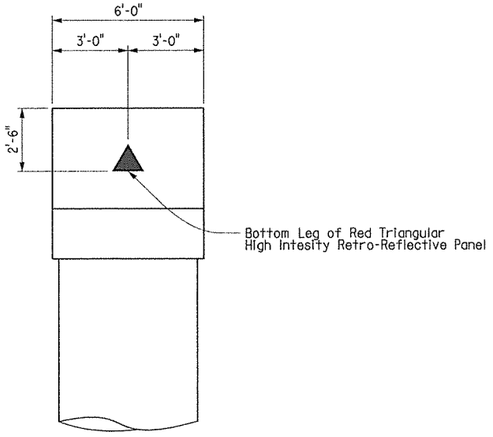
RED TRIANGLE PANEL DETAIL

No Scale



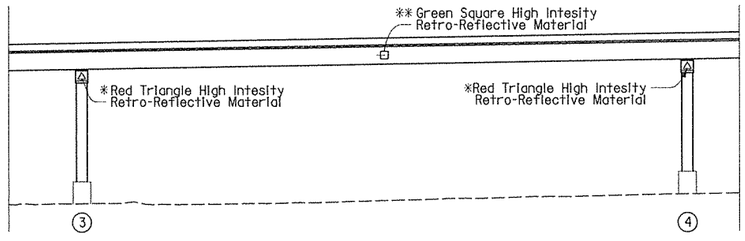
GREEN SQUARE PANEL DETAIL

No Scale



RED TRIANGLE PANEL LOCATION DETAIL

No Scale



ELEVATION

No Scale

* 15" Red equilateral triangle High Intesnsity Retro-Reflectiye material shall be installed according to the manufacturer's recommendations. Retro-Reflective material will not be paid for separately but shall be considered subsidiary to the Item "Structural Steel In Plate Girder Spans (M270, Grade 50W)". See Red Triangle Panel Location Detail.

** 12" Green square High Intesnsity Retro-Reflective material shall be installed according to the manufacturer's recommendations. Retro-Reflective material will not be paid for separately but shall be considered subsidiary to the Item "Structural Steel in Plate Girder Spans (M270, Grade 50W)". See Green Square Panel Location Detail.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11339
LARRY W. MILLER
8/29/14

BRIDGE ENGINEER

DETAILS OF REFLECTIVE PANELS OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: VCS DATE: 02-14 FILENAME: b070240_nav.dgn

CHECKED BY: LWM DATE: 03-07-14 SCALE: NONE

DESIGNED BY: DLM DATE: 02-14

BRIDGE NO. 07316 DRAWING NO. 55597

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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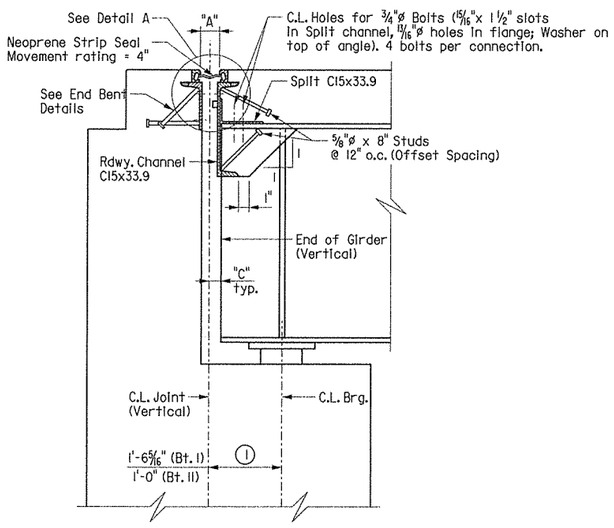
				JOB NO.		070240	107	172
				(1) 07316		JOINT DETAILS		55598



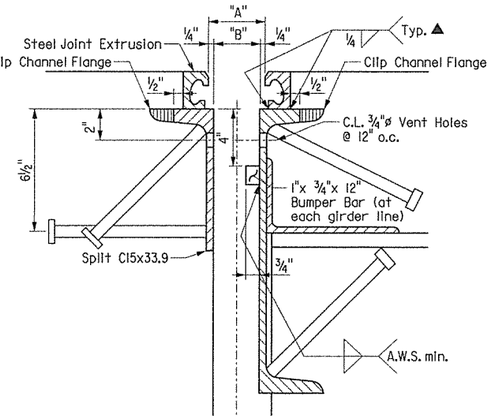
(1) Measured Along C.L. Girder

SECTION THRU JOINT AT END BENTS

I" = I'-0"

Note: Sections thru Joints are taken normal to C.L. Joints

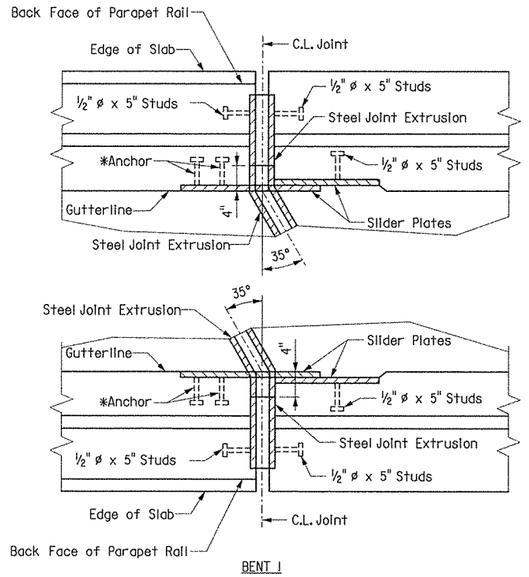
▲ Shop Weld - See Subsection 809.03(b)



DETAIL A

3" = I'-0"

Note: Concrete shall be hand packed under the joint armor in the backwall and in the span.

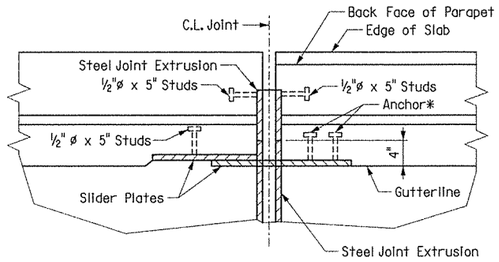


BENT I

* The method of attachment of the cover slider plate assembly must be such that it may be removed in order to provide for future replacement of the neoprene seal.

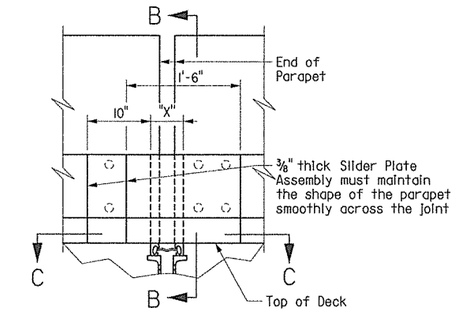
Anchors will not be paid for directly but will be considered subsidiary to "STRUCTURAL STEEL IN PLATE GIRDER SPANS (M270, Grade 50W)"

Method of installation and fabrication shall be determined by the Engineer.



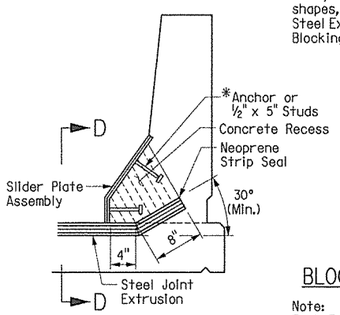
BENT II

SECTION C-C



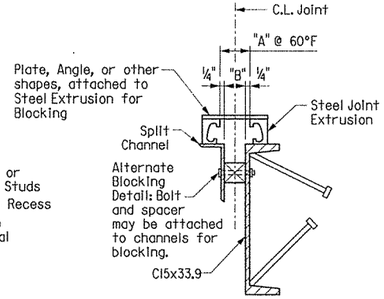
DETAIL OF NEOPRENE SEAL AT GUTTERLINE

Scale: I" = I'-0"



SECTION B-B

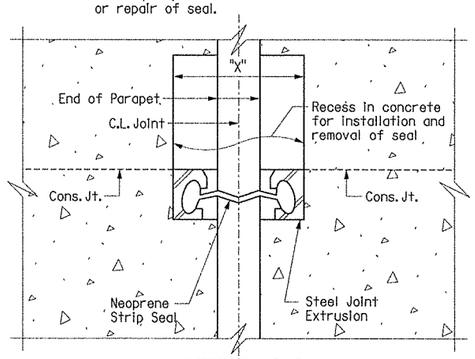
Scale: I" = I'-0"



DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

Note:
Each Expansion Joint device shall be blocked in the shop by the Fabricator to the dimension shown for 60° F and the blocking details shall be shown on the Shop Drawings. Blocking shall be placed within 2 feet of each end of the device and with a maximum spacing of 8 feet.

Dimension "X" equals the width of the opening in the parapet at the curb to allow for removal or repair of seal.



SECTION D-D

STRIP SEAL JOINT DATA

Bent No.(s)	Movement Rating (inch)	"A" Width Perpendicular to Joint at 24 Hour Average Temperature ** of:			"B" Width Perpendicular to Joint at 24 Hour Average Temperature ** of:			"C" Perpendicular to Joint at 24 Hour Average Temperature of 60° F
		40° F	60° F	80° F	40° F	60° F	80° F	
I	4"	3 1/16"	2 3/4"	2 7/16"	2 9/16"	2 1/4"	1 15/16"	2 3/8" +/-
II	4"	3 1/16"	2 3/4"	2 7/16"	2 9/16"	2 1/4"	1 15/16"	2 3/8" +/-

**The temperature used to set the joint opening shall be the approximate average air temperature during the 24 hour period immediately before the bolts are tightened. The Engineer shall establish the temperature.

Installation is limited to 40°F, min. and 80°F, max. Interpolation of the table may be necessary.

EXPANSION DEVICE INSTALLATION AT END BENTS:

The contractor may elect to install the expansion device using one of the following two alternatives:

1) The concrete span pour adjacent to joint shall be placed before the end bent backwall is placed. After the end bent backwall forms are in place and the girders erected, the blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the backwall concrete, the blocking shall be removed, the opening adjusted for temperature, and the backwall constructed.

2) The backwall shall be poured to the optional construction joint after girders are erected. The blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the remainder of the backwall concrete, the blocking shall be removed and the opening adjusted for temperature.

GENERAL NOTES

EXPANSION NEOPRENE STRIP SEAL: The expansion device shall provide a movement of 4" as shown in the "STRIP SEAL JOINT DATA" table. The expansion joint shall be capable of sealing the deck surface and parapet area to prevent moisture and other contaminants from descending through the joint.

Details of proposed slider plate assembly shall be submitted to and approved by the Engineer prior to the fabrication of any structural steel at the expansion device.

All structural steel shall be Grade 50W except for the parapet slider plates which shall be Grade 36. Grade 50W steel shall not be painted and all exposed surfaces shall be cleaned in accordance with Subsection 807.84(e). All exposed surfaces of the parapet slider plates shall be cleaned and painted in accordance with Section 683. Painting will not be paid for directly and structural steel completely embedded in concrete need not be painted. All structural steel shall be paid for as "Structural Steel in Plate Girder Spans (M 270, Gr. 50W)", except as noted.

The steel extrusion and neoprene strip seal shall be paid for in accordance with Section 809

STATE OF ARKANSAS
Larry W. Miller
REGISTERED PROFESSIONAL ENGINEER
No. 11339
8/29/14
LARRY W. MILLER

BRIDGE ENGINEER

DETAILS OF ARMORED JOINT WITH NEOPRENE STRIP SEAL OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

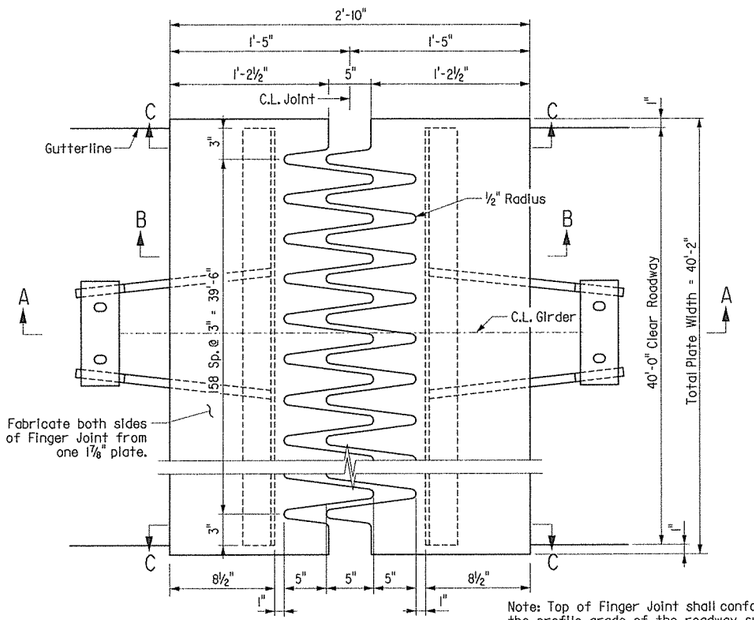
DRAWN BY: BEG DATE: 01-14 FILENAME: b070240_jl.dgn

CHECKED BY: LWM DATE: 03-07-14 SCALE: As Shown

DESIGNED BY: BEG DATE: 01-14

BRIDGE NO. 07316 DRAWING NO. 55598

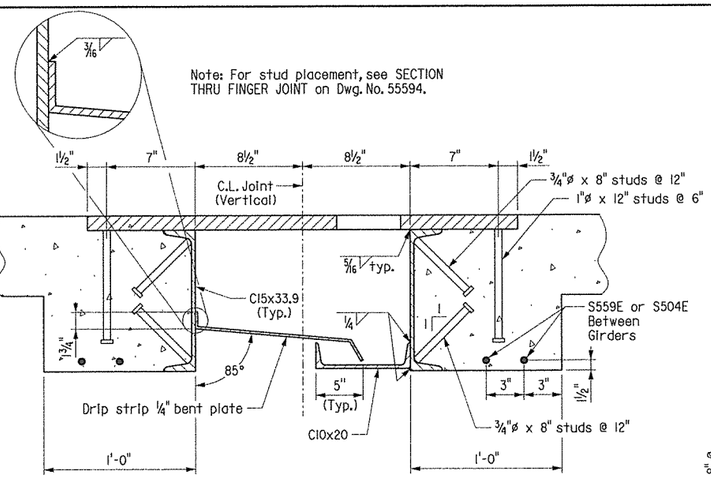
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	108	172
				(1) 07316		JOINT DETAILS		55599



EXPANSION PLATE DETAIL

Scale: None

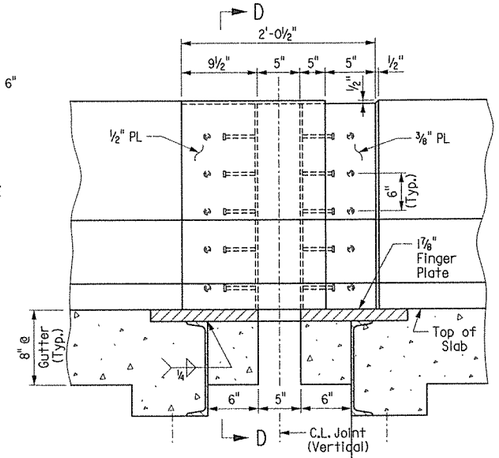
Note: Top of Finger Joint shall conform to the profile grade of the roadway surfaces. Dimensions shown are at 60° F.



Note: The ¾"ø studs shown shall be granular flux filled, solid fluxed, or equal, and automatically end welded to the channel in accordance with recommendations of the manufacturer.

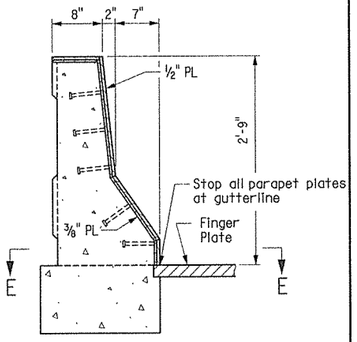
SECTION B-B

Scale: 1½" = 1'-0"



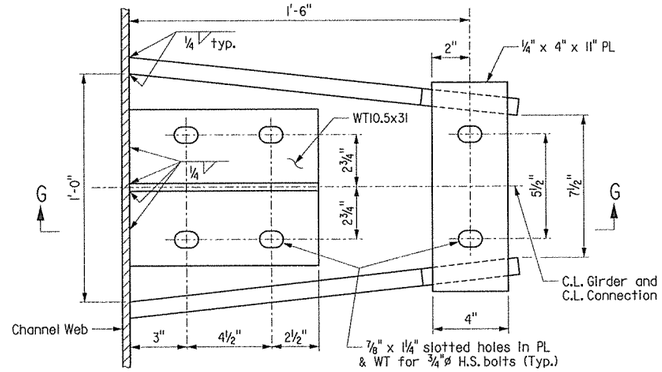
SECTION C-C

Scale: 1" = 1'-0"



SECTION D-D

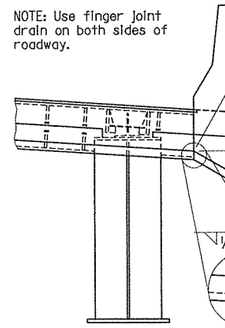
Scale: 1" = 1'-0"



Note: Detail device ⅛" high and provide ¼" shims for Tee using 1-⅛" PL and 2-1/16" PL's.

PLAN OF CONNECTION TO GIRDER

Scale: 3" = 1'-0"



DRAIN DETAIL

Scale: ½" = 1'-0"

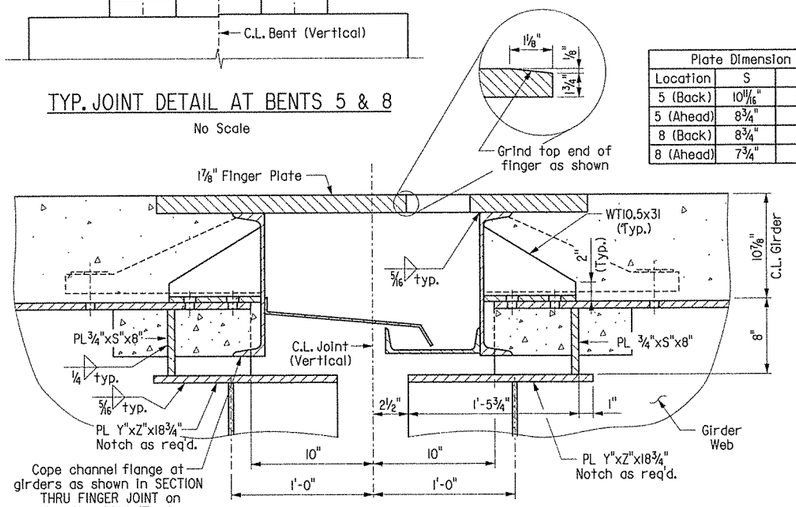
TYP. JOINT DETAIL AT BENTS 5 & 8

No Scale

Joint Width at 24 hour average temperature of:			
Bent No.	40° F	60° F	80° F
5	6"	5"	4"
8	5 15/16"	5"	4 3/16"

Note: Before joint closure pours are done, joint shall be set and adjusted for grade. Set joint width by interpolating from table.

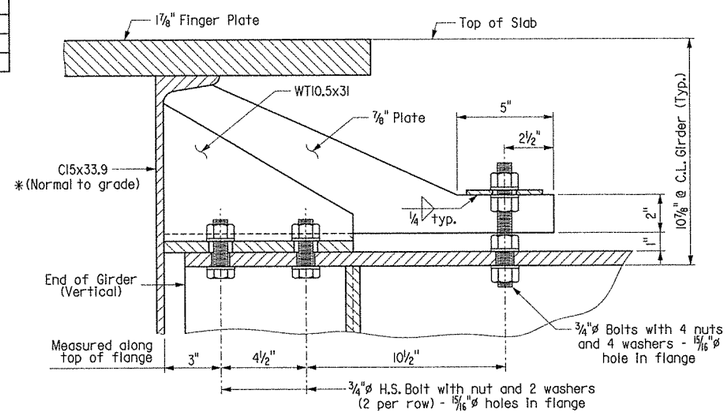
Plate Dimension Variables			
Location	S	Y	Z
5 (Back)	10 11/16"	1⅜"	22"
5 (Ahead)	8¾"	1"	18"
8 (Back)	8¾"	1"	18"
8 (Ahead)	7¾"	1"	16"



SECTION A-A AT GIRDER

Scale: 1½" = 1'-0"

*Bearing stiffeners and ends of girders are vertical. Expansion device is normal to grade. See TYP. JOINT DETAIL AT BENTS 5 & 8 for additional info.



SECTION G-G AT GIRDER

Scale: 3" = 1'-0"

NOTES

All structural steel in the expansion device shall be paid for as STRUCTURAL STEEL IN PLATE GIRDER SPANS (M270, Grade 50W).

All structural steel in Finger Joints, except parapet slider plates, shall be AASHTO M270 Gr. 50W and galvanized in accordance with AASHTO M 111 after fabrication. Parapet slider plates shall be AASHTO M 270, Gr. 36. Surfaces of the parapet slider plates which will not be in contact with the concrete shall be cleaned and painted in accordance with Section 638. Only one coat is required and shall be applied in the fabricator's shop. Galvanizing and painting shall not be paid for directly, but will be considered subsidiary to STRUCTURAL STEEL IN PLATE GIRDER SPANS (M270, Grade 50W).

STATE OF ARKANSAS
Larry W. Miller
REGISTERED PROFESSIONAL ENGINEER
No. 13339
8/29/14
LARRY W. MILLER
BRIDGE ENGINEER

DETAILS OF FINGER JOINT OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

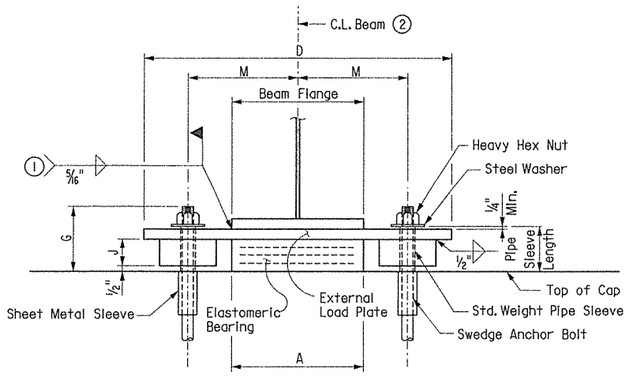
DRAWN BY: BEG DATE: 02-14 FILENAME: b070240_J2.dgn

CHECKED BY: LWM DATE: 03-07-14 SCALE: As Shown

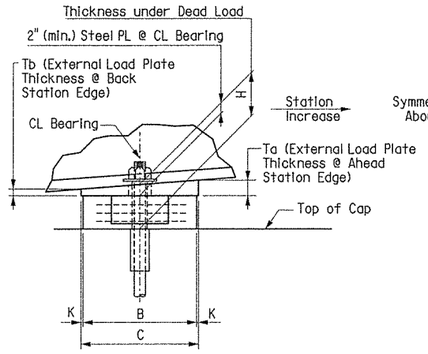
DESIGNED BY: BEG DATE: 02-14

BRIDGE NO. 07316 DRAWING NO. 55599

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	109	172
				(1) 07316		BEARING DETAILS		55600

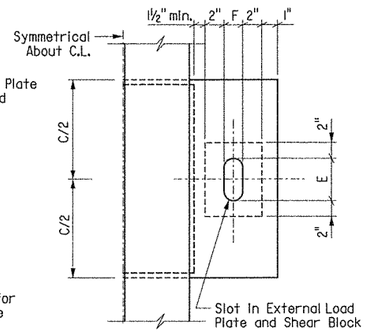


FRONT VIEW @ BENT NOS. 2 thru 5 (Back), 6 thru 7 & 9 thru 10

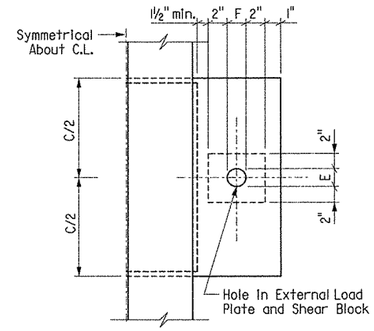


The direction of bevel of the external load plate as shown is for Bents 2, 3, 4, 5 & 6. Bevel for other Bents will be in the opposite direction. See Table of Fabricator Variables for dimensions.

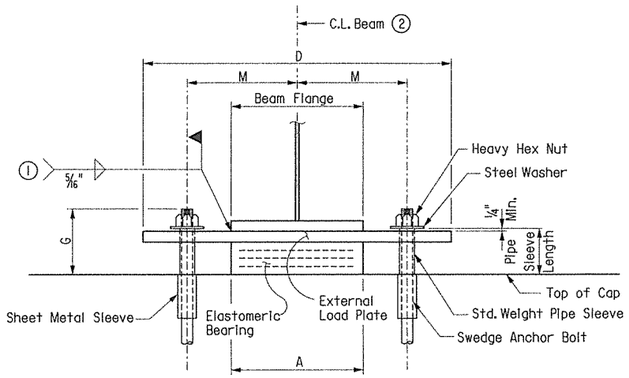
SIDE VIEW @ BENT NOS. 2 thru 5 (Back), 6 thru 7 & 9 thru 10



HALF PLAN VIEW @ BENT NOS. 2 AND 5 (BACK)



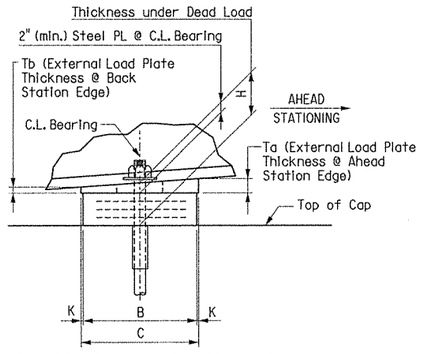
HALF PLAN VIEW @ BENT NOS. 3, 4, 6, 7, 9 & 10



FRONT VIEW @ BENT NOS. 1, 5 (Ahead), 8 & 11

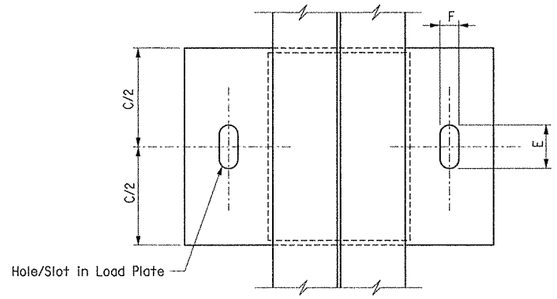
(1) Care shall be taken to ensure that the external load plate is in full and complete contact with the girder or girder flange before welding begins.

(2) C.L. Bearing shall align with C.L. Beam

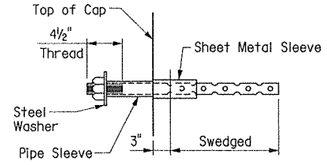


The direction of bevel of the external load plate as shown is for Bents 1 & 5. Bevel for other Bents will be in the opposite direction. See Table of Fabricator Variables for dimensions.

SIDE VIEW @ BENT NOS. 1, 5 (Ahead), 8 & 11



PLAN VIEW @ BENT NOS. 1, 5 (Ahead), 8 & 11



ANCHOR BOLT DETAIL

NOTE:
Anchor Bolts may be cast in place or drilled and grouted into place. If Anchor Bolts are to be cast in place, the Galvanized Sheet Metal Sleeves will not be required. If Anchor Bolts are to be drilled and grouted in place, the Galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam, or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of Structural Steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into the masonry. Bolts placed in drilled holes shall be accurately set and fixed using a QPL approved epoxy or non-shrink grout that completely fills the holes. Galvanized Sheet Metal Sleeves will not be paid for directly, but will be considered subsidary to the item "STRUCTURAL STEEL IN PLATE GIRDER SPANS, (M270, Gr. 50W)".

GENERAL NOTES

Elastomeric Bearings shall conform to Section 808 of the Standard Specifications and shall be paid for at the unit price bid for "ELASTOMERIC BEARINGS." Bearings shall be seated in accordance with Subsection 808.08.

External load plates and shear blocks shall conform to AASHTO M270, Grade 50W for plates up to 4" thick and ASTM A588 Grade 42 up to 6" thick. Pipe sleeves shall be ASTM A 53, Grade B, and shall be galvanized to conform to AASHTO M232, Class C or AASHTO M298, Class 50.

External load plates (with shear blocks as applicable) shall be completely fabricated (including bevel and bolt holes) and shall be cleaned before vulcanizing to the elastomeric bearing. The surface in contact with the elastomeric bearing shall be cleaned in accordance with Subsection 808.03. Other surfaces shall be blast cleaned in accordance with Subsection 807.84(e).

Anchor Bolts, Washers, and Nuts shall conform to subsection 807.07 of the Standard Specifications. The anchor bolt grade of steel shall be as specified in the "TABLE OF FABRICATOR VARIABLES". Indentations shall be circular with rounded bottoms and staggered as shown in the details.

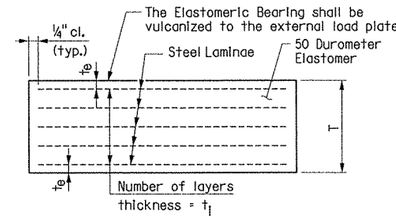
Pipe Sleeves, Anchor Bolts, Washers, and Nuts shall be paid for at the unit price bid for "STRUCTURAL STEEL IN PLATE GIRDER SPANS (M270, Gr. 50W)".

Unless otherwise approved by the Engineer, welding of the external load plate at expansion bearings to the girder will be allowed only when 1) the approximate average air temperature during the 24 hour period immediately preceding welding is between 40°F and 80°F; and 2) the slots in the external load plate are positioned to center on the anchor bolts; and 3) no horizontal deformation of the elastomeric pad is evident. If welding at other temperatures is required, the Engineer will provide adjustment data.

TABLE OF FABRICATOR VARIABLES

* Maximum Design Load = Service I Limit State

BRIDGE NO.	LOCATION: BENT NO(S).	LINE ID	BEAM OR GIRDER NO.	BEARING TYPE	NO. of BEARINGS EACH BENT	*MAXIMUM DESIGN LOAD (KIPS)	G	H	ELASTOMERIC PAD: A	B	N	t_i	t_e	NO. & THICKNESS OF STEEL LAMINAE	EXTERNAL LOAD PLATE: T	C	D	E	F	J	K	M	T_a	T_b	ANCHOR BOLT: ANCHOR BOLT (ø x L)	GRADE	PIPE SLEEVE SIZE (ø x L)	SHEET METAL SLEEVE SIZE (ø x L)	STEEL WASHER SIZE (O.D.)
07316	1	--	All	Exp.	5	235.3	11⅛"	6¾"	18"	11½"	7	½"	¼"	8 @ 12 Ga.	4¹³/₁₆"	12½"	32"	6"	3¾"	na	½"	12½"	2.04	1.96	2¾" x 41¼"	55	3" x 7⅛"	5" x 8"	5"
	2	--	All	Exp.	5	372.4	9⅝"	6¹¹/₁₆"	24"	13"	7	½"	¼"	8 @ 12 Ga.	4¹³/₁₆"	14"	41½"	3½"	2¼"	4³/₁₆"	½"	16¾"	2.12	1.88	1½" x 27"	55	1½" x 7⅛"	3" x 9"	3"
	3	--	All	Fixed	5	519.8	9¼"	6¹¹/₁₆"	28½"	13"	6	½"	¼"	7 @ 12 Ga.	4¼"	14"	46¾"	2⅝"	2⅝"	3⁹/₁₆"	½"	19¼"	2.12	1.88	1¾" x 29½"	55	2" x 6½"	4" x 9"	3⅜"
	4	--	All	Fixed	5	634.5	10"	6⅝"	29½"	14"	7	½"	¼"	8 @ 12 Ga.	4¹³/₁₆"	15"	48¾"	3⅛"	3⅛"	4⅛"	½"	20"	2.12	1.88	2" x 32¼"	55	2½" x 7⅛"	4" x 9"	3¾"
	5 (Back)	--	All	Exp.	5	264.4	11¾"	9¹/₁₆"	15½"	14½"	11	½"	¼"	12 @ 12 Ga.	7¼"	15½"	36½"	5⅜"	2"	6⁹/₁₆"	½"	14¼"	2.13	1.87	1¼" x 25⅜"	55	1¼" x 9⅝"	3" x 8"	2½"
	5 (Ahead)	--		Exp.	5	238.5	10"	5⁵/₁₆"	20½"	10"	5	½"	¼"	6 @ 12 Ga.	3⅝"	11"	34"	5½"	3¾"	na	½"	13½"	2.09	1.91	2¾" x 40"	55	3" x 6"	5" x 8"	5"
	6	--	All	Fixed	5	477.9	9¼"	6⅛"	25½"	13"	6	½"	¼"	7 @ 12 Ga.	4¼"	14"	43¾"	2⅝"	2⅝"	3⁹/₁₆"	½"	17¾"	2.09	1.91	1¾" x 29¼"	55	2" x 6½"	4" x 8"	3⅜"
	7	--	All	Fixed	5	477.8	9¼"	6¼"	25½"	13"	6	½"	¼"	7 @ 12 Ga.	4¼"	14"	43¾"	2⅝"	2⅝"	3¾"	½"	17¾"	1.93	2.07	1¾" x 29¼"	55	2" x 6½"	4" x 8"	3⅜"
	8 (Back)	--	All	Exp.	5	168.5	11⅛"	6¾"	20"	11"	7	½"	¼"	8 @ 12 Ga.	4¹³/₁₆"	12"	34"	6⅛"	3¾"	na	½"	13½"	1.84	2.16	2¾" x 41¼"	55	3" x 7⅛"	5" x 8"	5"
	8 (Ahead)	--	All	Exp.	5	156.2	11⅛"	6¾"	18"	11"	7	½"	¼"	8 @ 12 Ga.	4¹³/₁₆"	12"	32"	5⅞"	3¾"	na	½"	12½"	1.84	2.16	2¾" x 41¼"	55	3" x 7⅛"	5" x 8"	5"
	9	--	All	Fixed	5	445.5	9¼"	6⅛"	24½"	13"	6	½"	¼"	7 @ 12 Ga.	4¼"	14"	42¾"	2⅝"	2⅝"	3⁹/₁₆"	½"	17¼"	1.70	2.30	1¾" x 29¼"	55	2" x 6½"	4" x 8"	3⅜"
	10	--	All	Fixed	5	445.5	9¼"	6⅛"	24½"	13"	6	½"	¼"	7 @ 12 Ga.	4¼"	14"	42¾"	2⅝"	2⅝"	3⁹/₁₆"	½"	17¼"	1.63	2.37	1¾" x 29¼"	55	2" x 6½"	4" x 8"	3⅜"
	11	--	All	Exp.	5	156.1	9½"	5⁹/₁₆"	19½"	10"	5	½"	¼"	6 @ 12 Ga.	3⅝"	11"	32½"	5½"	3¾"	na	½"	12¾"	1.71	2.29	2½" x 36½"	55	3" x 6"	4" x 8"	4½"



t_e = thickness of elastomer cover on top and bottom of pad

t_i = thickness of elastomer between steel laminae

N = number of elastomer layers of thickness t_i

ELASTOMERIC BEARING

STATE OF ARKANSAS
Larry W. Miller
REGISTERED PROFESSIONAL ENGINEER
No. 11339
LARRY W. MILLER 8/22/14

BRIDGE ENGINEER

DETAILS OF ELASTOMERIC BEARINGS OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

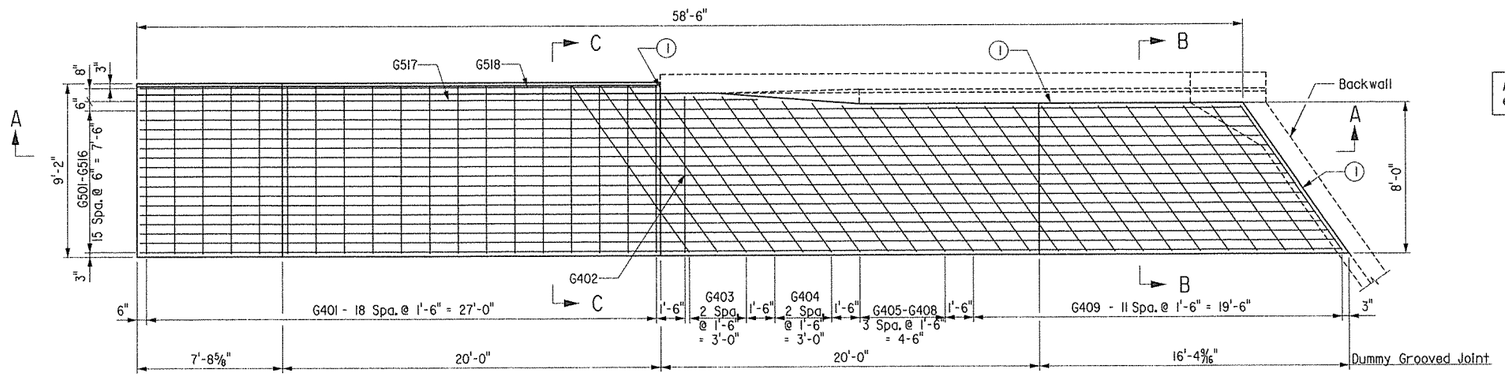
DRAWN BY: BEG DATE: 01-14 FILENAME: b070240_El.dgn

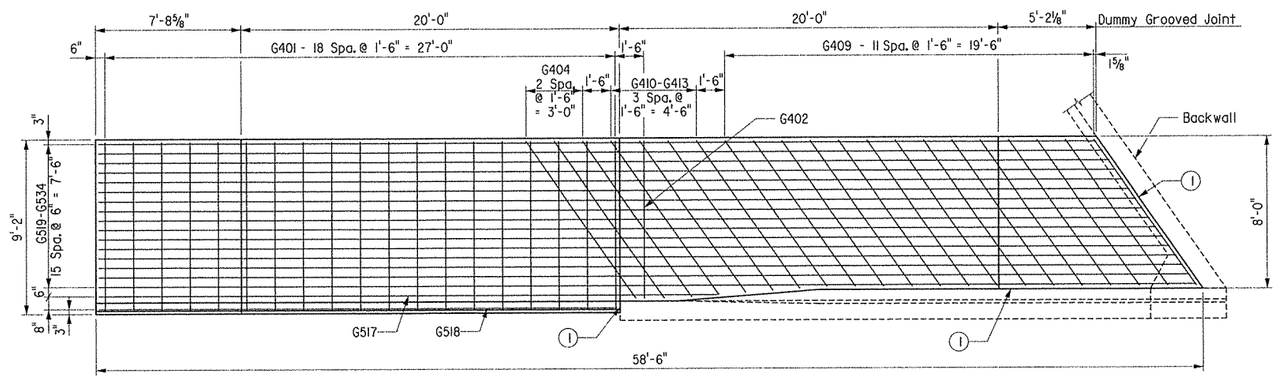
CHECKED BY: LWM DATE: 03-07-14 SCALE: AS SHOWN

DESIGNED BY: BEG DATE: 01-14

BRIDGE NO. 07316 DRAWING NO. 55600

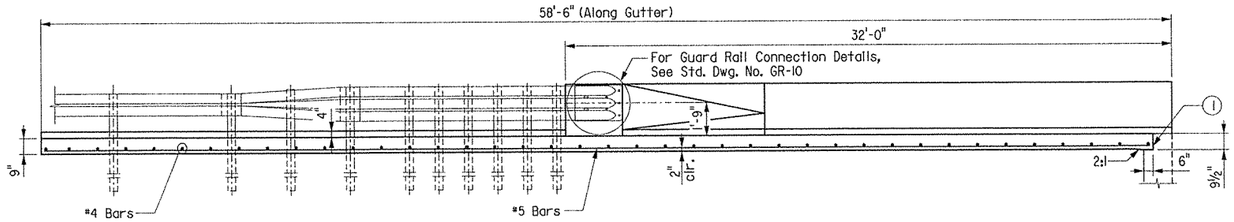
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	110	172
				① 07316		APPROACH GUTTER		55601





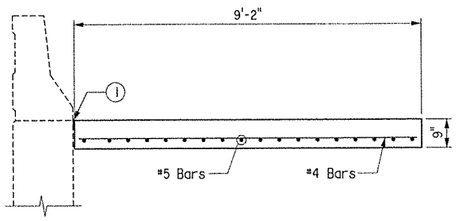
PLAN OF TYPE SPECIAL I APPROACH GUTTER

Scale: ¼" = 1'-0"



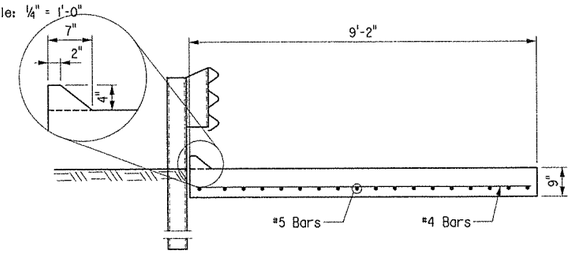
SECTION A-A

Scale: ¼" = 1'-0"



SECTION B-B

Scale: ½" = 1'-0"



SECTION C-C

Scale: ½" = 1'-0"

Adjust grade at gutterline as necessary to ensure drainage to the bridge end drains.

① ½" Preformed Joint (AASHTO M153, Type I) and 2" x ½" Poured Joint Sealer (Type 3 or 4) as per Subsection 501.02(h)(2).

BAR LIST - TYPE SPECIAL I APPROACH GUTTER (LEFT AND RIGHT)

Mark	No. Req'd.	Length	Pin Dia.
G401	38	8'-10"	Str.
G402	2	8'-3"	Str.
G403	3	10'-9"	Str.
G404	6	10'-0"	Str.
G403 to G408	2 ea.	9'-10" to 9'-5"	Str.
G409	24	9'-4"	Str.
G501 to G516	1 ea.	63'-6" to 58'-3"	Str.
G517	2	32'-8"	Str.
G518	2	27'-4"	Str.
G519 to G534	1 ea.	52'-8" to 57'-11"	Str.

QUANTITIES FOR TYPE SPECIAL I APPROACH GUTTER (LEFT AND RIGHT)

Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
2,561	28.43

GENERAL NOTES

Concrete shall be Class S or Class S(AE) or mixture used for Portland Cement Concrete Pavement.

Reinforcing Steel shall conform to AASHTO M31 or M322 Type A, Grade 60 (fy = 60,000 psi). Fabricate bar lengths to provide 2" minimum cover at each end.

Approach gutters will be measured and paid for in accordance with Section 504 of the Standard Specifications.

STATE OF ARKANSAS
Larry W. Miller
REGISTERED PROFESSIONAL ENGINEER
No. 13339
6/29/14
LARRY W. MILLER
BRIDGE ENGINEER

DETAILS OF TYPE SPECIAL I APPROACH GUTTER OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

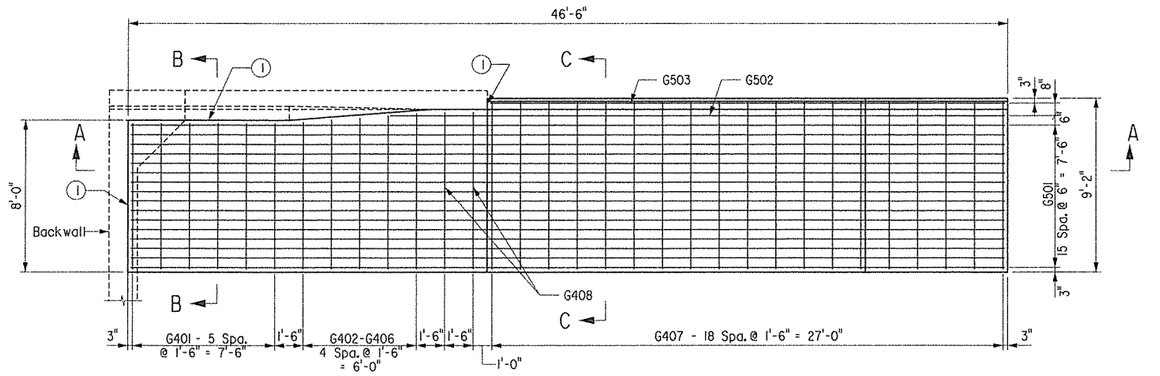
DRAWN BY: BEG DATE: 02-14 FILENAME: b070240_GI.dgn

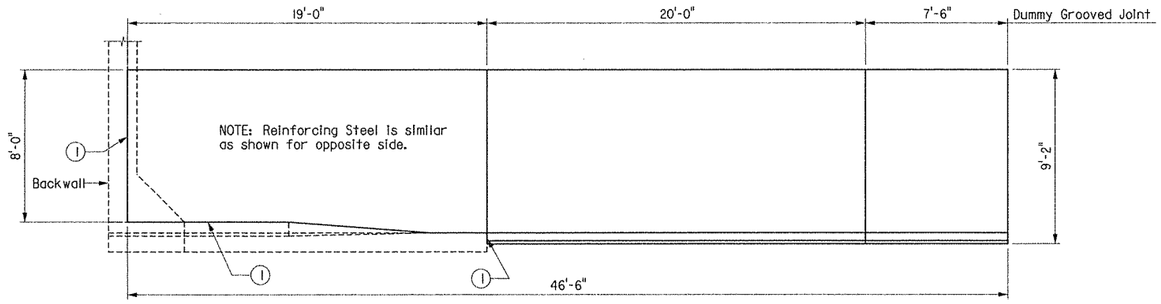
CHECKED BY: LWM DATE: 03-07-14 SCALE: AS SHOWN

DESIGNED BY: BEG DATE: 02-14

BRIDGE NO. 07316 DRAWING NO. 55601

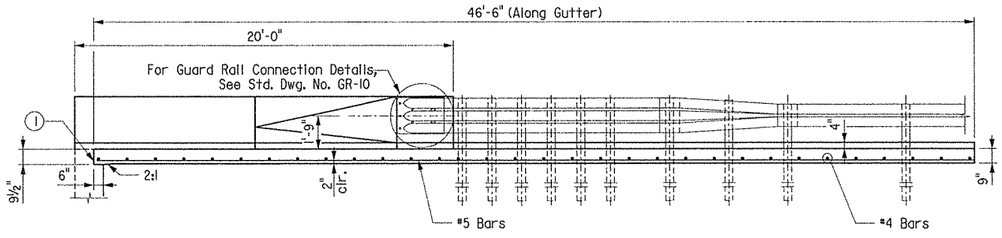
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	111	172
				(1) 07316		APPROACH GUTTER		55602





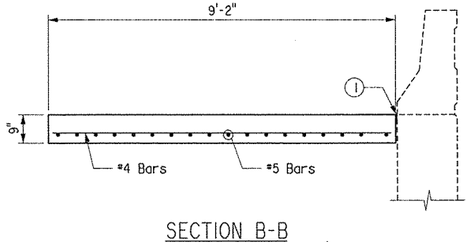
PLAN OF TYPE SPECIAL 2 APPROACH GUTTER

Scale: 1/4" = 1'-0"



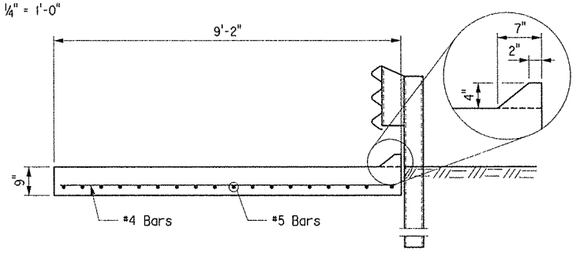
SECTION A-A

Scale: 1/4" = 1'-0"



SECTION B-B

Scale: 1/2" = 1'-0"



SECTION C-C

Scale: 1/2" = 1'-0"

(1) 1/2" Preformed Joint (AASHTO M153, Type I) and 2" x 1/2" Poured Joint Sealer (Type 3 or 4) as per Subsection 501.02(h)(2).

BAR LIST - TYPE SPECIAL 2 APPROACH GUTTER (LEFT AND RIGHT)

Mark	No. Req'd.	Length	Pin Dia.
G401	12	7'-8"	Str.
G402 to G406	2 ea.	7'-8" to 8'-2"	Str.
G407	38	8'-10"	Str.
G408	4	8'-3"	Str.
G501	32	46'-2"	Str.
G502	2	32'-5"	Str.
G503	2	27'-2"	Str.

QUANTITIES FOR TYPE SPECIAL 2 APPROACH GUTTER (LEFT AND RIGHT)

Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
2,026	22.94

GENERAL NOTES

Concrete shall be Class S or Class S(AE) or mixture used for Portland Cement Concrete Pavement.

Reinforcing Steel shall conform to AASHTO M31 or M322 Type A, Grade 60 (fy = 60,000 psi). Fabricate bar lengths to provide 2" minimum cover at each end.

Approach gutters will be measured and paid for in accordance with Section 504 of the Standard Specifications.

STATE OF ARKANSAS
Larry W. Miller
REGISTERED PROFESSIONAL ENGINEER
No. 11339
8/29/14
LARRY W. MILLER
BRIDGE ENGINEER

DETAILS OF TYPE SPECIAL 2 APPROACH GUTTER OUACHITA RIVER BRIDGE

ROUTE 51 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: BEG DATE: 02-14 FILENAME: b070240_G2.dgn

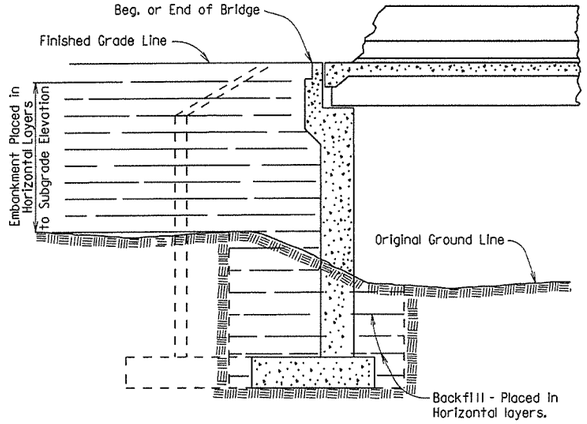
CHECKED BY: LWM DATE: 03-07-14 SCALE: AS SHOWN

DESIGNED BY: BEG DATE: 02-14

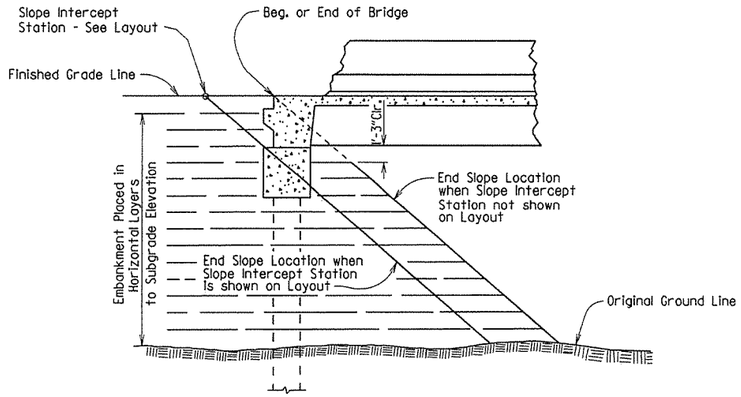
BRIDGE NO. 07316 DRAWING NO. 55602

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		112	
				JOB NO.				

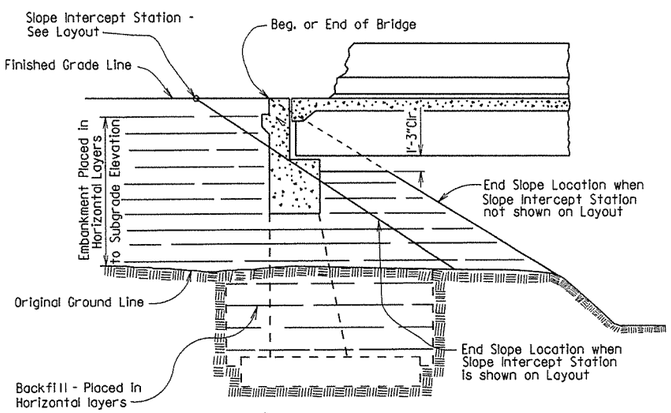
① EMBANKMENT & BACKFILL 55000



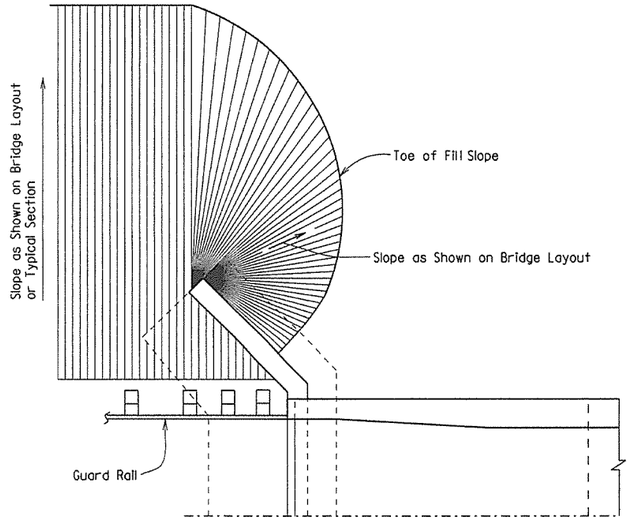
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



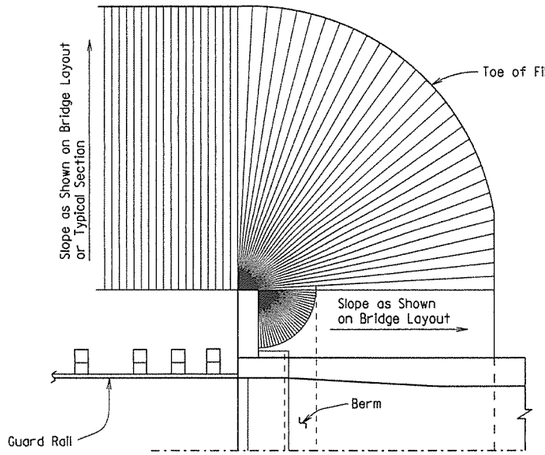
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



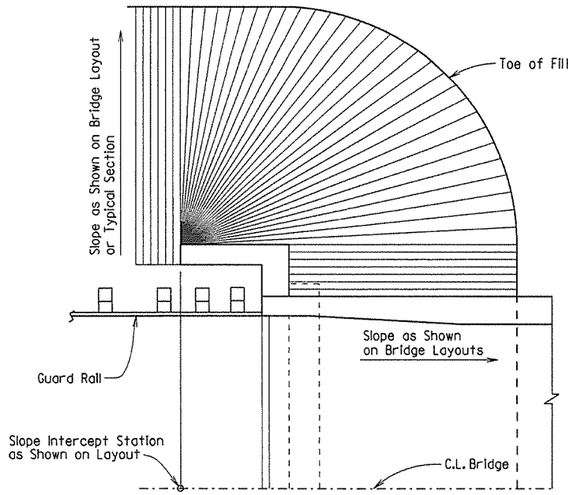
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



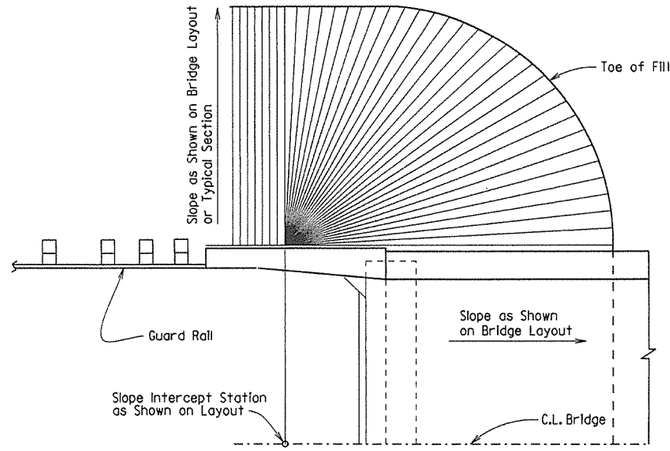
VERTICAL WALL ABUTMENTS



SPILL-THROUGH END BENTS WITH STUB WING



SPILL-THROUGH END BENTS WITH TURNBACK WING



SPILL-THROUGH END BENTS WITH TRANSITION WING

METHOD OF DETERMINING FILL SLOPE LOCATION AT BRIDGE ENDS

GENERAL NOTES

The Bridge End Embankment shall be defined as a section of embankment, not less than 20 feet long adjacent to the bridge end, together with the side slopes and slopes under the bridge end including around the end of wingwalls. Embankment adjacent to structures shall be constructed in 6 inch horizontal layers (loose measure) and compacted by the use of mechanical equipment to the satisfaction of the Engineer. Refer to Subsections 210.09, 210.10 and 801.08 for construction requirements.

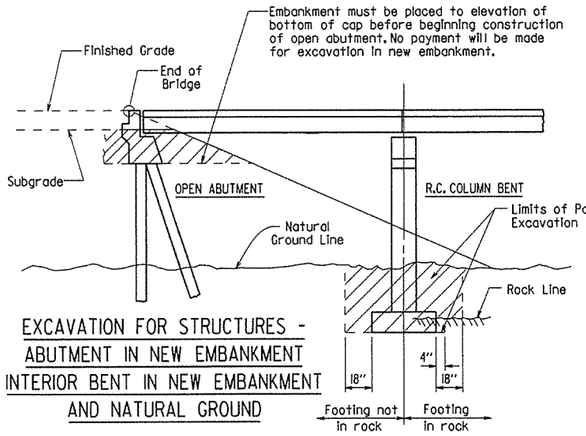
STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

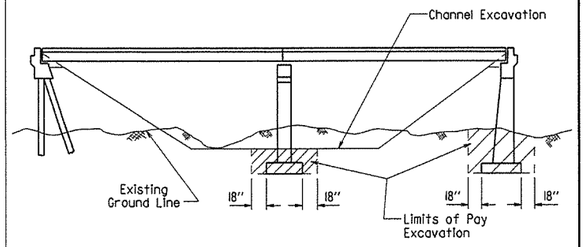
DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55000.dgn
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: -

DRAWING NO. 55000

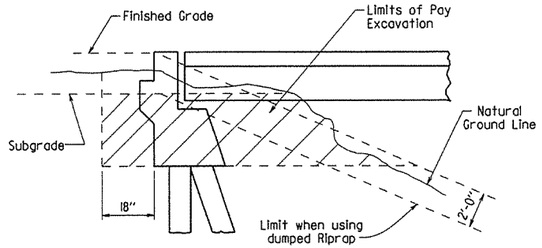
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		113	
				JOB NO.				
				①	RIPRAP & EXCAV. 55001			



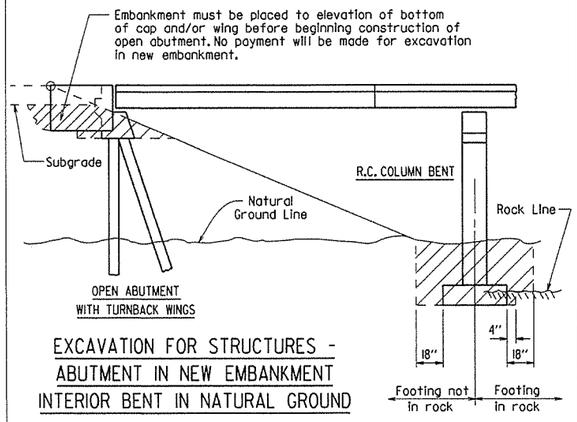
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



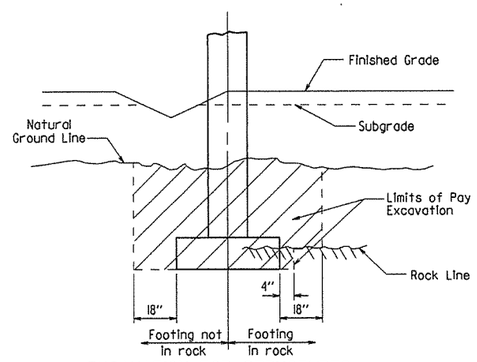
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



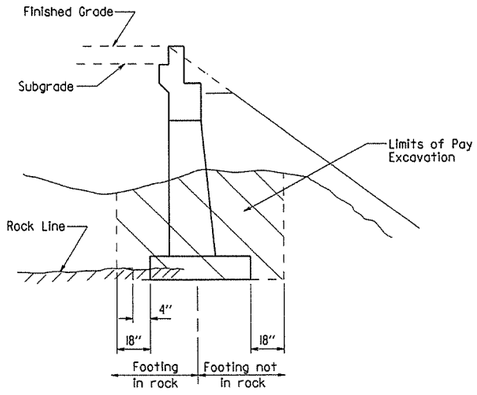
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



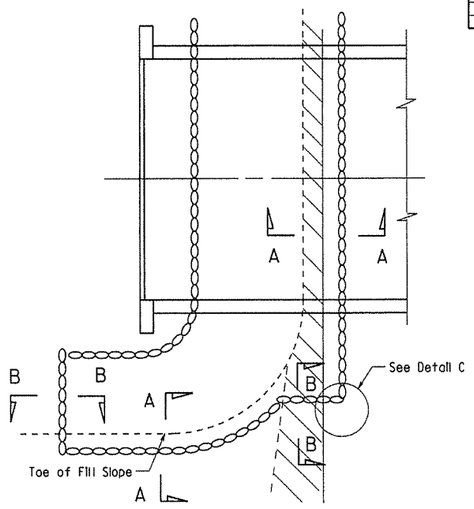
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



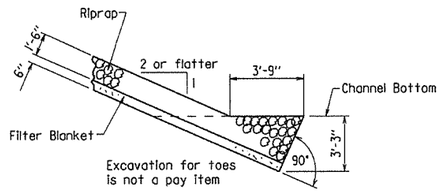
EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT

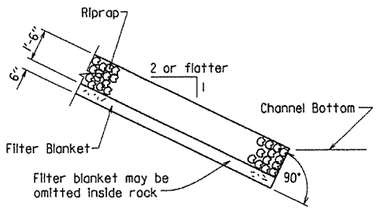


PLAN OF DUMPED RIPRAP



SECTION A-A

(Toe Excavation in Soil)



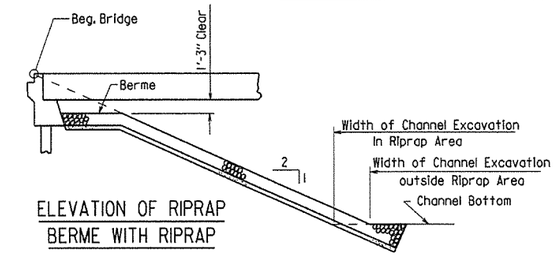
SECTION A-A

(Toe Excavation in Rock)

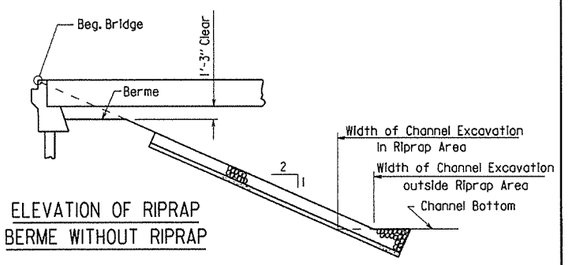
Note : Use this type of toe when rock is encountered which is in a stable condition.

Note : In lieu of an aggregate filter blanket, a synthetic fiber geotextile fabric complying with the requirements of Subsection 816.02(e) may be used.

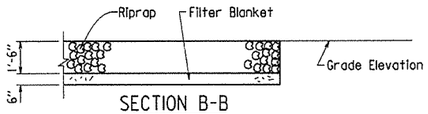
Note : Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.



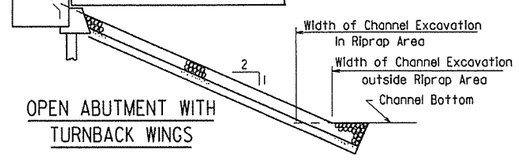
ELEVATION OF RIPRAP BERME WITH RIPRAP



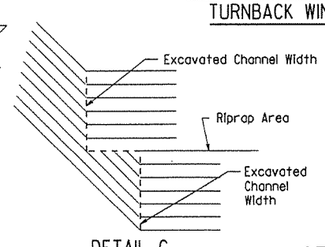
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



SECTION B-B



OPEN ABUTMENT WITH TURNBACK WINGS



DETAIL C

STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

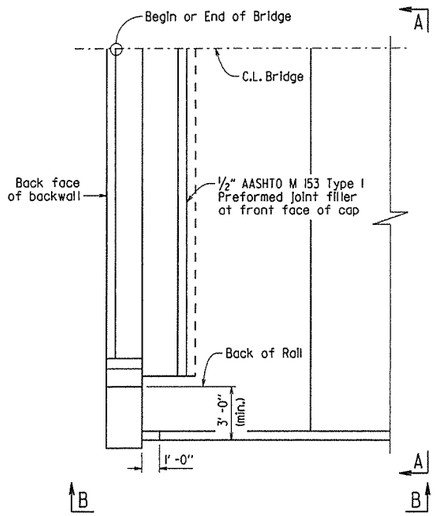
DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55001.dgn

CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE

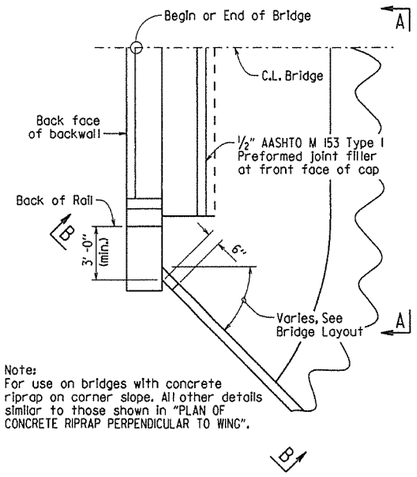
DESIGNED BY: STD. DATE:

DRAWING NO. 55001

Note:
Sloped surfaces of concrete riprap to be marked off into blocks (construction joints optional) with an approved grooving tool, spacing the grooved lines about 5' apart.



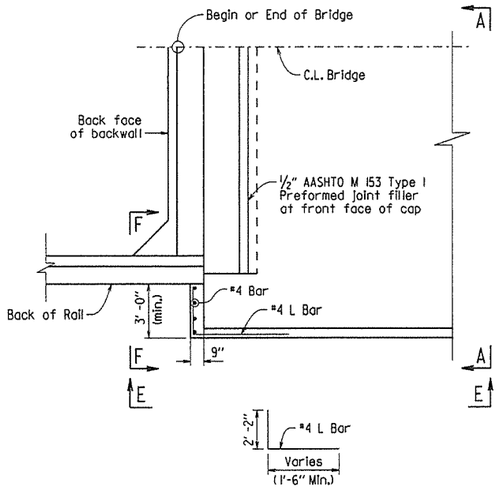
PLAN OF CONCRETE RIPRAP
PERPENDICULAR TO WING
1/4" = 1'-0"



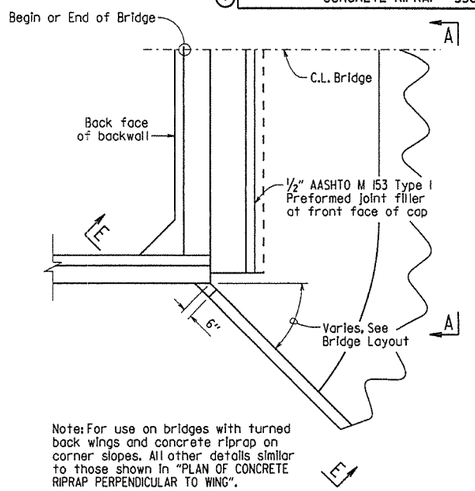
Note:
For use on bridges with concrete riprap on corner slope. All other details similar to those shown in "PLAN OF CONCRETE RIPRAP PERPENDICULAR TO WING".

PLAN OF CONCRETE RIPRAP
AT ANGLE TO WING
1/4" = 1'-0"

Note:
For use on bridges with turned back wings. All other details similar to those shown in "PLAN OF CONCRETE RIPRAP PERPENDICULAR TO WING".



PLAN OF CONCRETE RIPRAP
PERPENDICULAR TO TURNED BACK WING
1/4" = 1'-0"



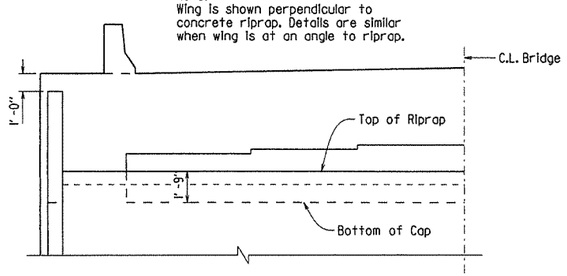
Note: For use on bridges with turned back wings and concrete riprap on corner slopes. All other details similar to those shown in "PLAN OF CONCRETE RIPRAP PERPENDICULAR TO WING".

PLAN OF CONCRETE RIPRAP
AT ANGLE FROM TURNED BACK WING
1/4" = 1'-0"

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		114	
				JOB NO.				

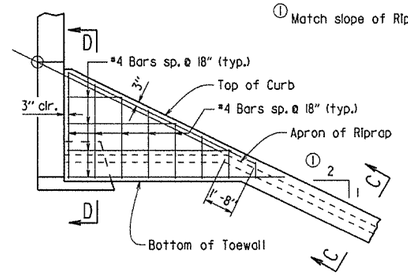
① CONCRETE RIPRAP 55002

Note:
Wing is shown perpendicular to concrete riprap. Details are similar when wing is at an angle to riprap.

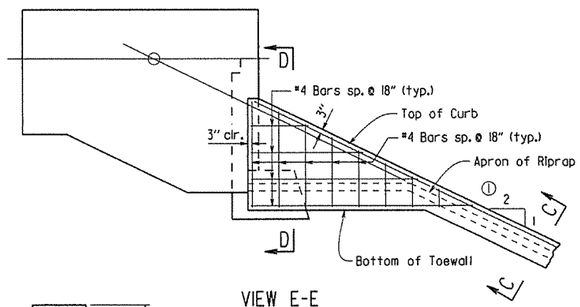


VIEW A-A
1/4" = 1'-0"

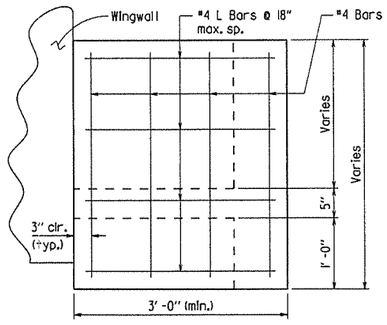
① Match slope of Riprap Apron.



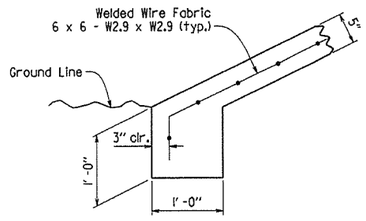
VIEW B-B
1/4" = 1'-0"



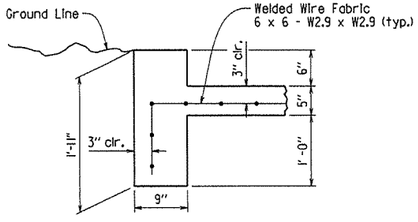
VIEW E-E
1/4" = 1'-0"



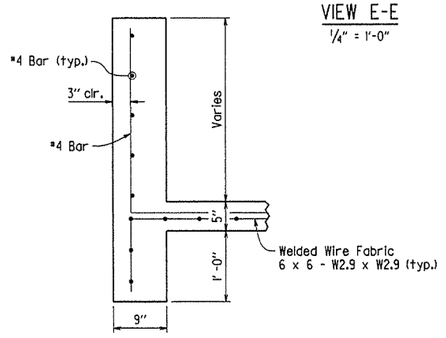
VIEW F-F
1" = 1'-0"



TOE OF CONCRETE RIPRAP
1" = 1'-0"



SECTION C-C
1" = 1'-0"



SECTION D-D
1" = 1'-0"

GENERAL NOTES

All concrete shall be Class A with a minimum compressive strength, f'c = 2,100 psi.

Welded wire fabric shall conform to AASHTO M55 or M221.

STANDARD DETAILS FOR CONCRETE RIPRAP

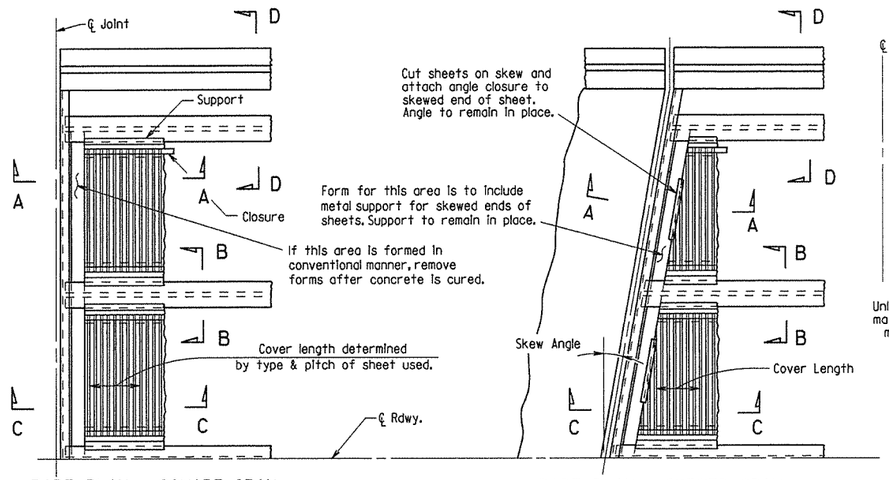
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: ACP DATE: 2/27/2014
CHECKED BY: BEF DATE: 2/27/2014
DESIGNED BY: Std. DATE: ---
FILENAME: b55002.dgn
SCALE: AS SHOWN

DRAWING NO. 55002

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		115	
				JOB NO.				
				①	BRIDGE DECK FORMS		55005	

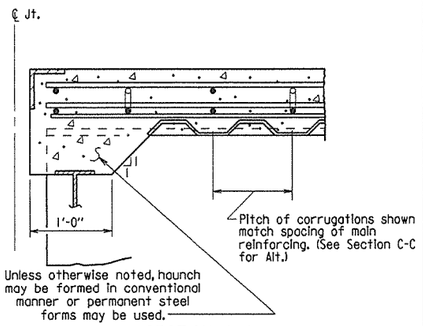


PART PLAN - SQUARE SPAN

3/8" = 1'-0"

PART PLAN - SKEWED SPAN

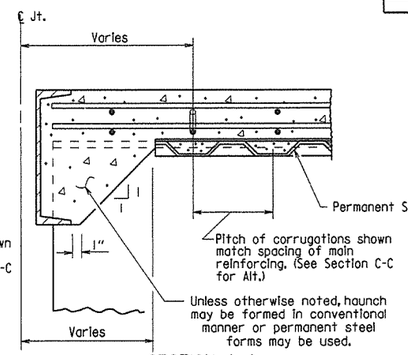
3/8" = 1'-0"



SECTION A-A

N.T.S.

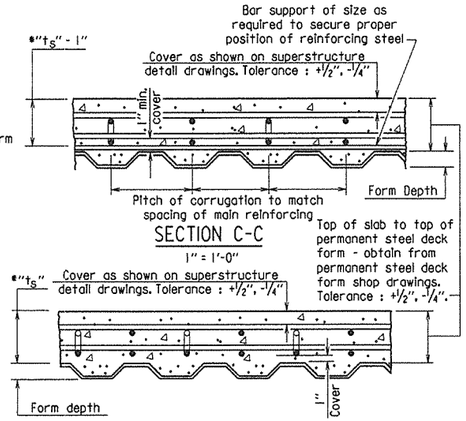
(Angle at end of span)



SECTION A-A

N.T.S.

(Channel at end of span)



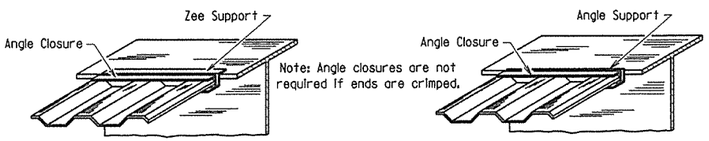
SECTION C-C

1" = 1'-0"

SECTION C-C - ALTERNATE

1" = 1'-0"

(Applicable when corrugations do not match spacing of main reinforcement)



Note: Angle closures are not required if ends are crimped.

SKETCH OF PERMISSIBLE SUPPORTS

N.T.S.

*t_s = slab thickness as shown on superstructure detail drawings.

GENERAL NOTES

Permanent steel deck forms may be used at the Contractor's option and shall be at no additional cost to the Department. Such use may result in changes to the dead load deflection of the girder. Any cost for adjustments due to a change in the dead load deflection will be borne by the Contractor. Payment for deck concrete and structural steel will not be increased due to use of permanent steel deck forms.

Permanent steel deck forms shall conform to Subsection 802.14(b). Detailed plans, including detailed calculations and manufacturer's technical brochure, shall be submitted to and approved by the Engineer before work of forming the bridge deck is started.

Welding of form supports to the tension flange of steel girders will be permitted only in areas where shear connectors are used. When welding is not allowed, the method of fastening Z or ∠ supports to the flange must be approved by the Engineer.

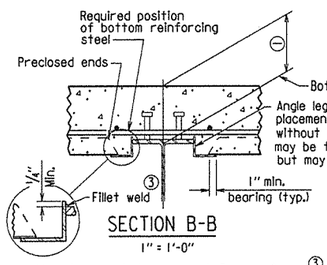
Form sheets shall be fastened to supporting members and to each other with galvanized metal screws sufficient in size and number to provide a secure attachment. Alternate methods of attachment must be approved by the Engineer.

When the pitch of form corrugations match the reinforcing spacing, transversely align form sheets across the bridge to maintain the correct orientation of continuous reinforcing bars in the corrugations.

Bar support rods, when used, shall be sized and spaced to adequately support the bottom reinforcing mat at the required position.

High chairs shall be sized to support the top mat of reinforcing at the proper position. High chairs shall be placed at locations shown on the detail drawings.

Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition), with applicable Supplemental Specifications and Special Provisions.

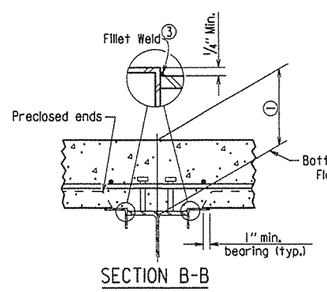


SECTION B-B

1" = 1'-0"

(Showing permissible support for tension flange where shear connectors are used, and for all compression flanges)

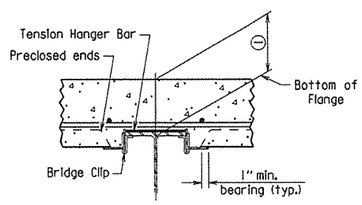
③ Minimum weld: 1/8" x 1' @ 18". More weld may be required; maximum length per weld = 1 1/2" (typ.)



SECTION B-B

1" = 1'-0"

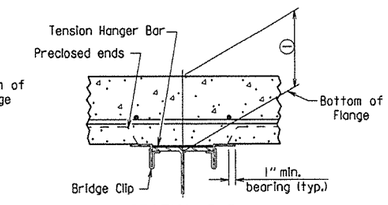
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



SECTION B-B

1" = 1'-0"

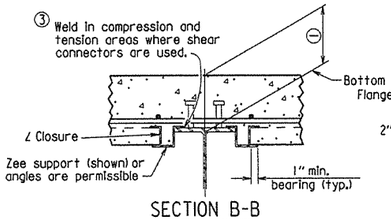
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

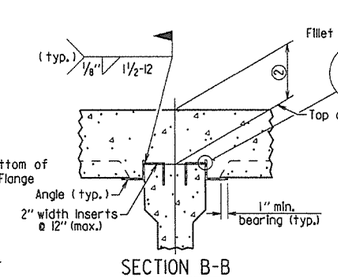
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

(Showing ∠ Closure)

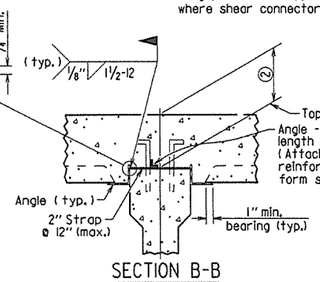


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by Insert cast in girder)

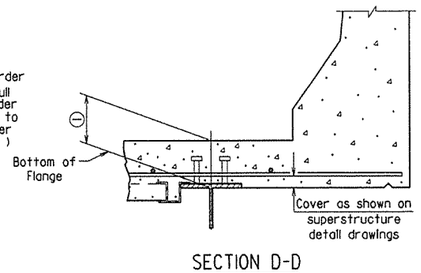


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by Strap)



SECTION D-D

1" = 1'-0"

Note: Only Bottom Reinforcing is shown.

① Distance from top of slab to bottom of top flange as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances : Minimum - occurs when either the top flange or the support angle leg contacts the bottom reinforcing steel; Maximum = t_S + 1 1/4" + flange thickness. See Section C-C for slab thickness tolerance between adjacent girder flanges.

② Distance from top of slab to top of girder as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances : Minimum - occurs when either the top of girder or the support angle leg contacts the bottom reinforcing steel; Maximum - value shown on the superstructure detail drawings when removable forms are used. See Section C-C for slab thickness tolerance between adjacent girder flanges.

STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55005.dgn

CHECKED BY: BEF DATE: 2-27-2014 SCALE: NONE

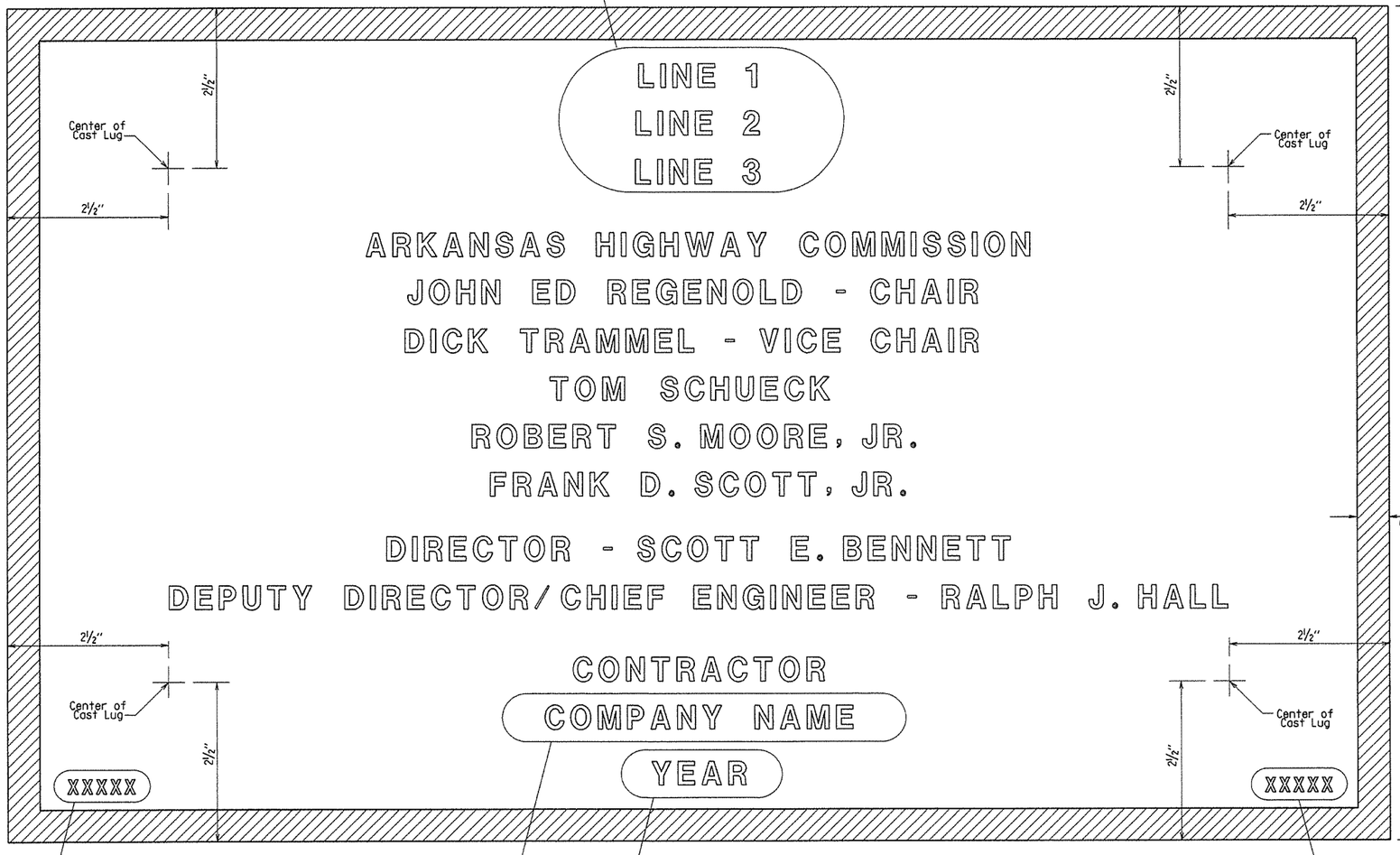
DESIGNED BY: STD. DATE: —

DRAWING NO. 55005

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		116	
				JOB NO.				
				① TYPE D NAME PLATE			55010	

The name of the bridge as shown on the plans shall be placed on Lines 1 - 3 using 1/8" raised letters and numerals 3/8" high.

	Example 1	Example 2	Example 3	Example 4
Line 1	Red River	Southern	Saline	
Line 2	Relief	Railroad	River	Highway 5
Line 3		Overpass	Relief	



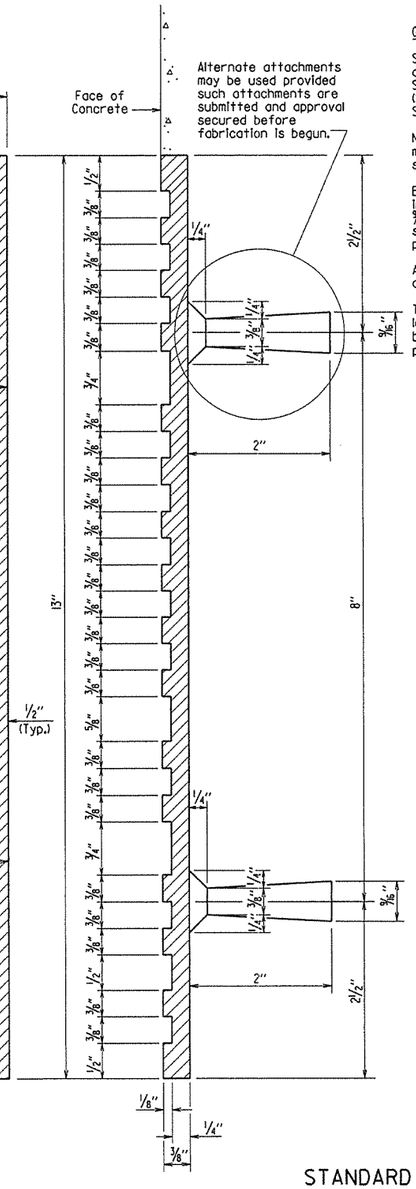
Place the design live loading here using 1/8" raised letters and numerals 1/4" high. Examples : HS 20
HL-93

Place the Year in which Contract was awarded here using 1/8" raised numerals 3/8" high. Example : 2001

Place the name of the company awarded the construction contract here using 1/8" raised letters and numerals 3/8" high. Example : ABCD CONSTRUCTION, INC.

Place the Bridge number here using 1/8" raised letters and numerals 1/4" high. Examples : A1234
05432

TYPICAL BRIDGE NAME PLATE



GENERAL NOTES

Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, (2014 Edition) with applicable Supplemental Specifications and Special Provisions.

Name plates shall be cast bronze and shall meet the material requirements as specified in Section 812.

Body of plate shall be 1/4" thick and shall include four tapering cone lugs 3/4" to 7/8" x 2" long. The border and all lettering shall be raised 1/8" above the face of plate and shall be polished.

All lettering shall be plain gothic, square cut and not tapered.

The number of plates required and the location and name on the plate for each bridge shall be as designated on the plans.

STANDARD DETAILS FOR
TYPE D BRIDGE NAME PLATE

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55010.dgn
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: —

DRAWING NO. 55010

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		117	
				JOB NO.				
				①	STEEL H-PILES			55020

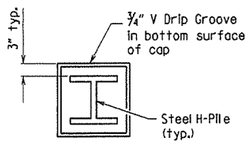
GENERAL NOTES FOR STEEL H-PILES:

Steel H-Piles shall conform to AASHTO M 270, Grade 36 or greater.

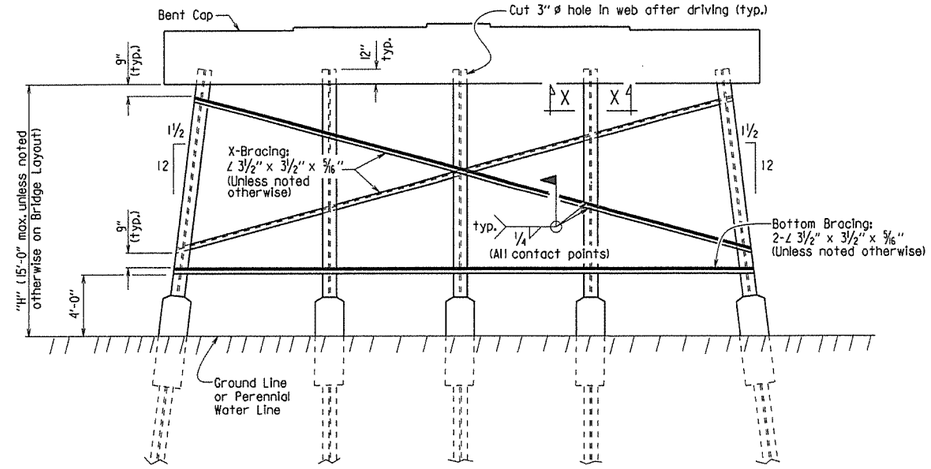
See Bridge Layout and Bent Details for pile size, estimated length, spacing, pile anchorage (if required) and for driving information.

Steel H-Piles that extend above the ground and are not protected by pile encasement shall be painted in accordance with Subsection 805.02.

Brackets, lugs, cap plates, pile tips, driving points, pile painting, splicing and welding shall not be paid for directly, but shall be considered subsidiary to the item "Steel Piling".



VIEW X-X



Notes:
All bracing shall be cut and welded in the field. Each brace shall be furnished in one piece. Payment shall be made under Item 807.

Unless noted otherwise, omit X-Bracing when "H" is less than 8 feet.

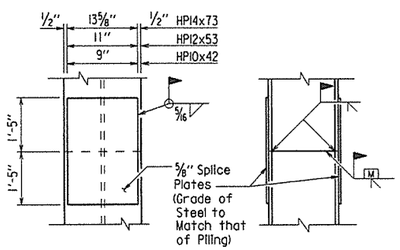
Omit X-Bracing and Bottom Bracing when "H" is 5 feet or less.

When required on the Bridge Layout sheet, pile encasements shall be constructed. See Notes and Details for H-Pile Encasements.

Omit all bracing (and V-groove in cap) when pile encasement is extended to bottom of bent cap.

TYPICAL DETAILS OF H-PILE TRESTLE INTERMEDIATE BENT

(Shown with Partial Height Encasement)

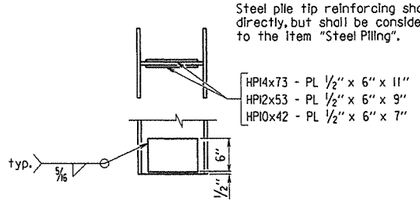


Note:
The Contractor may for his own convenience and at his own expense provide as many as three splices per pile. Minimum spacing between splices shall be 5 feet.

TYPICAL SPLICE DETAILS

Notes:
Steel pile tip reinforcing not required when approved H-Pile driving points are used.

Steel pile tip reinforcing shall not be paid for directly, but shall be considered subsidiary to the item "Steel Piling".



REINFORCING DETAIL FOR STEEL H-PILE TIP

GENERAL NOTES FOR H-PILE ENCASEMENTS:

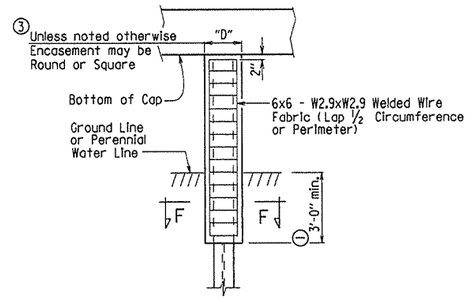
See Bridge Layout for additional notes and required location of pile encasements.

All concrete shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi. If concrete cannot be placed in the dry, Seal Concrete may be used from top to bottom of encasement.

Reinforcing steel shall be Grade 60 conforming to AASHTO M 31 or M 322, Type A.

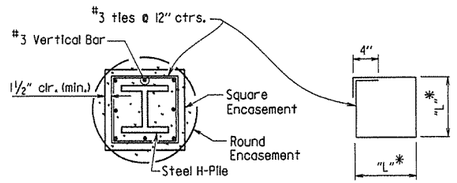
Welded Wire Fabric shall conform to AASHTO M 55 or M 221. Galvanized Corrugated Steel Pipe shall conform to AASHTO M 36 and M 218.

Concrete, welded wire fabric or reinforcing steel and galvanized pipe shall not be paid for directly, but shall be considered subsidiary to the item "Pile Encasement".



PILE ENCASEMENT DETAIL FOR STEEL H-PILES

④ (Shown with Encasement to Bottom of Cap)

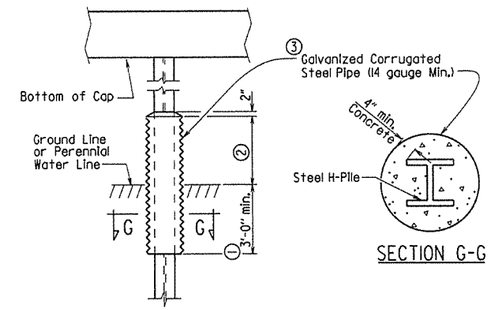


SECTION F-F

*Measured out-to-out of bar.

TABLE OF VARIABLES FOR PILE ENCASEMENT

Pile Size	"D" Square Encsmt.	"D" Round Encsmt.	"L"*
HPI0x42	1'-7"	2'-0"	1'-4"
HPI2x53	1'-8"	2'-2"	1'-5"
HPI4x73	1'-11"	2'-6"	1'-8"



SECTION G-G

⑤ ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL H-PILES

(Shown with Partial Height Encasement)

① Unless otherwise noted on Bridge Layout.

② 3'-0" minimum or as shown on Bridge Layout.

③ Encasement dimensions shall be sized to maintain a minimum concrete cover of 4" from the H-Pile. Reinforcement shall be sized to provide a minimum concrete cover of 1½" and a minimum clearance of 1¼" from the pile.

④ Alternate pile encasement, when not extended to bottom of cap, shall have 2" concrete taper for water runoff as shown in the Partial Height Encasement detail.

⑤ Alternate pile encasement may not be allowed. See Bridge Layout.

This document was originally issued and sealed by Carl J. Fuselier, PE No. 7510, on February 27, 2014. This copy is not a signed and sealed document.

STATE OF ARKANSAS ★★★ REGISTERED PROFESSIONAL ENGINEER ★★★ No. 7510 CARL J. FUSELIER

BRIDGE ENGINEER

STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

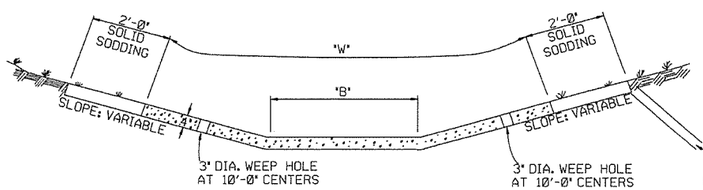
DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55020.dgn

CHECKED BY: B.E.F. DATE: 2/27/2014 SCALE: NO SCALE

DESIGNED BY: STD. DATE: —

DRAWING NO. 55020

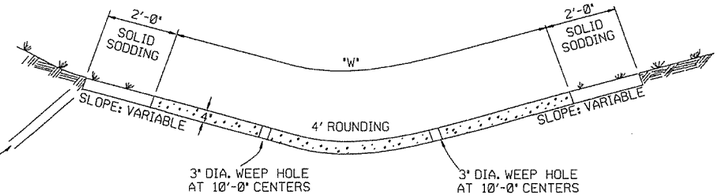
REFER TO TABULATION OF QUANTITIES FOR 'W' & 'B' DIMENSIONS



EXCAVATE TO NEAT LINES TO CONSTRUCT DITCH PAVING AND SOLID SODDING.

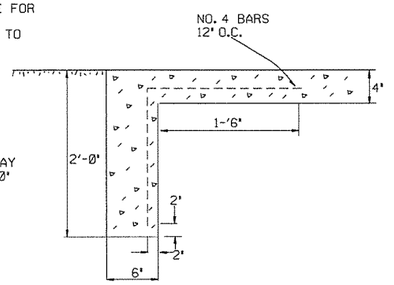
TYPE A

REFER TO TABULATION OF QUANTITIES FOR 'W' DIMENSIONS



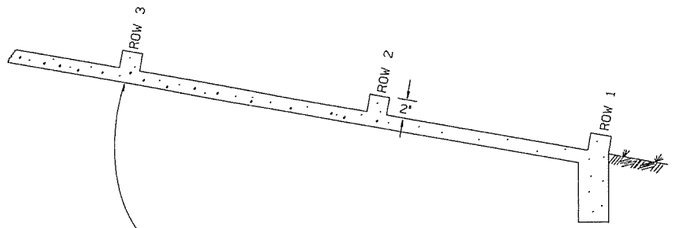
TYPE B

THE STEEL AND ADDITIONAL CONCRETE FOR THE WALLS SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR 'CONCRETE DITCH PAVING.'

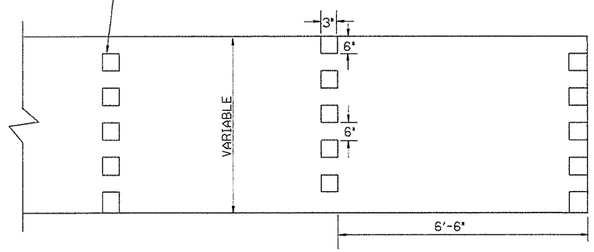


TOE WALL DEPTH MAY BE ALTERED TO 1'-0" WHEN DIRECTED BY THE ENGINEER IN ROCK EXCAVATION

TOE WALL DETAIL FOR CONCRETE DITCH PAVING



NUMBER OF ELEMENTS PER ROW VARIES WITH WIDTH OF PAVING SPECIFIED



ENERGY DISSIPATORS
(NO SCALE)

ENERGY DISSIPATORS TO BE USED FOR THE ENTIRE LENGTH OF DITCH WHEN SLOPE OF DITCH PAVING EXCEEDS 7%. THE DISSIPATORS WILL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE UNCLUDED IN THE PRICE BID FOR CONCRETE DITCH PAVING.

GENERAL NOTES:

THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY.

TOE WALLS TO BE CONSTRUCTED FULL WIDTH AT EACH END OF DITCH PAVING, AND POURED MONOLITHICALLY.

SOLID SOD ALONG DITCH PAVING TO BE PLACED WITHIN 14 DAYS OF DITCH PAVING CONSTRUCTION.

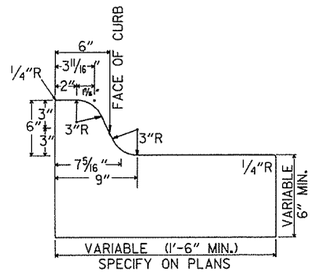
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

11-17-10	ADDED GENERAL NOTE	
6-2-94	ADDED GENERAL NOTE ABOUT SOLID SODDING	
11-30-8	ELIMINATED MIN. ROWS OF ELEMENTS	111-30-89
7-15-88	REVISED DISSIPATOR NOTE	653-7-15-88
4-3-87	REVISED ENERGY DISSIPATOR	671-4-3-87
1-9-87	MODIFIED NOTE ON ENERGY DISS.	532-1-9-87
11-3-86	ADDED NOTE TO ENERGY DISS.	599-12-1-86
11-1-84	ENERGY DISSIPATOR DETAILS ADDED	508-11-1-84
11-1-84	EXCAVATION DETAILS ADDED TYPED A & B	
10-2-72	REVISED AND REDRAWN	508-10-2-72
DATE	REVISION	DATE FILM'D

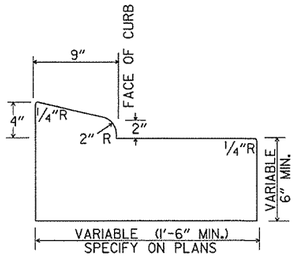
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

STANDARD DRAWING CDP-1



TYPE A



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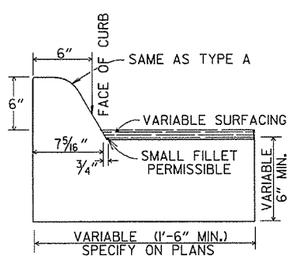
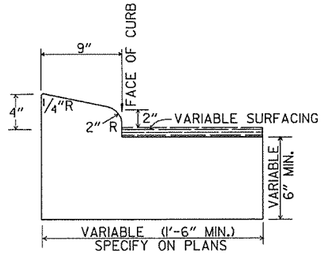


TYPE C



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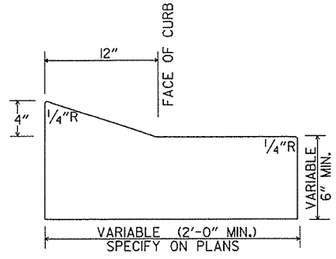
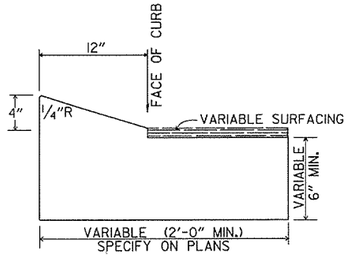
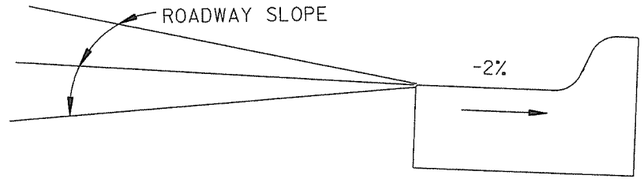


TYPE E-1



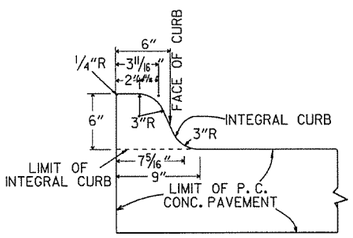
TYPE E-2

CONCRETE COMBINATION CURB AND GUTTER

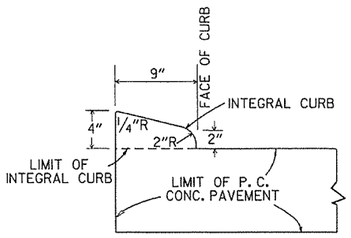


DETAIL OF GUTTER SLOPE

GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.



TYPE A



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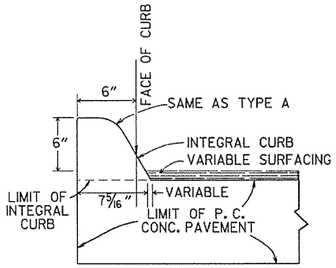
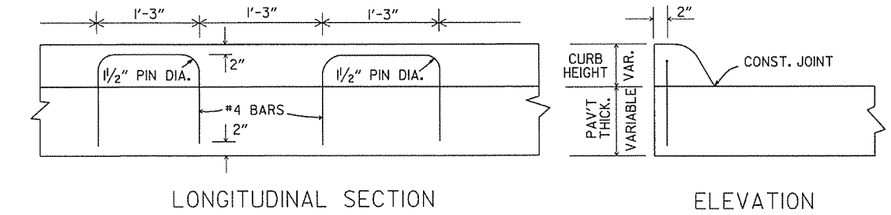


TYPE C

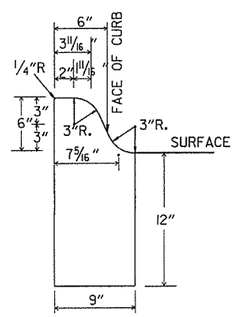
INTEGRAL CURB



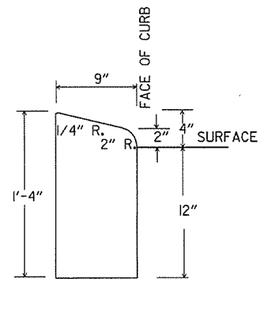
LONGITUDINAL SECTION

ELEVATION

ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB



TYPE A



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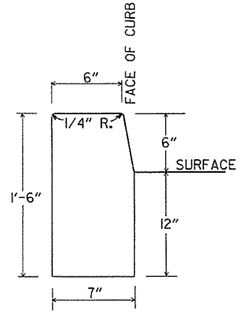
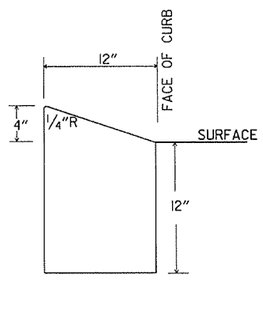
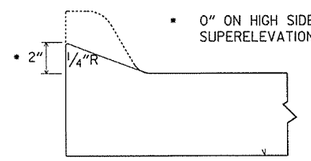


TYPE D



TYPE E

CONCRETE CURB



NOTE: USE MODIFIED CURB AS SPECIFIED ON STD. DR-1. COMPENSATION FOR MODIFIED CURB WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE TYPE OF CURB OR CURB AND GUTTER SPECIFIED.

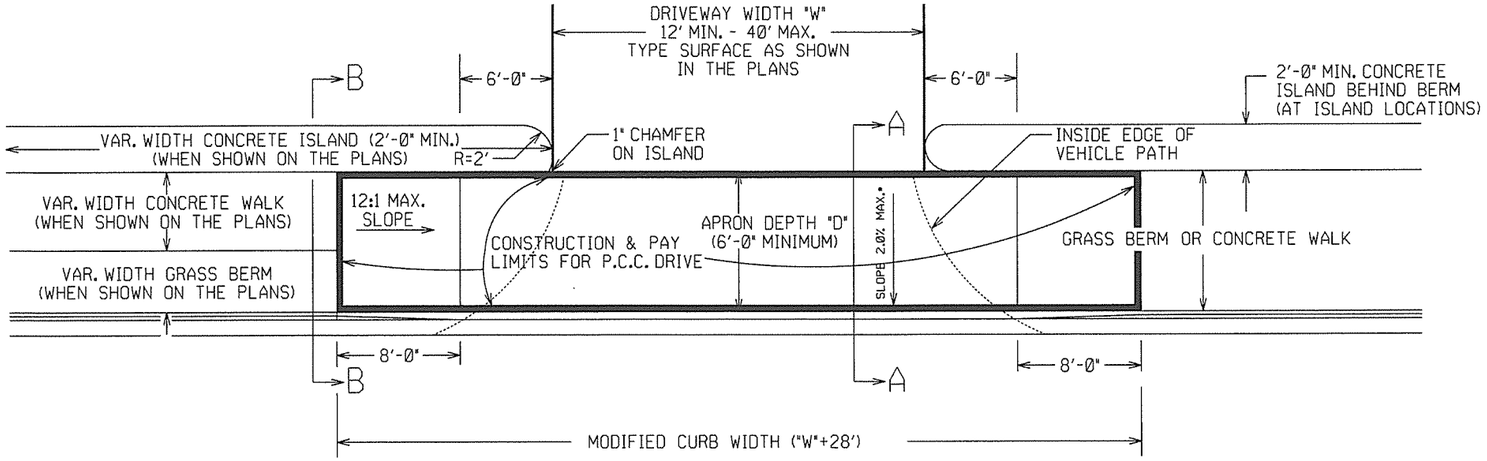
DETAILS OF MODIFIED CURB

DATE	REVISION	DATE FILMED
11-29-07	REVISED GUTTER SLOPE & MODIFIED CURB DETAILS	
11-10-05	ADDED DETAILS OF TYPE E CURBS	
11-16-01	REVISED CONCRETE CURB TYPE B	
11-18-98	REVISED MODIFIED CURB	
6-2-94	ADDED NOTE TO SPECIAL MODIFIED CURB	
8-5-93	CORRECTED GUTTER SLOPE	8-5-93
10-1-92	ADDED DETAILS OF GUTTER SLOPE	10-1-92
5-24-90	ADDED DETAILS OF MODIFIED CURB	5-24-90
11-30-89	VARIBLE DEPTH TYPE A & B I	11-30-89
7-15-88	REVISED MODIFIED CURB	630-7-15-88
11-1-73	REVISED MODIFIED CURB	500-11-1-73
10-2-72	REVISED AND REDRAWN	512-10-2-72

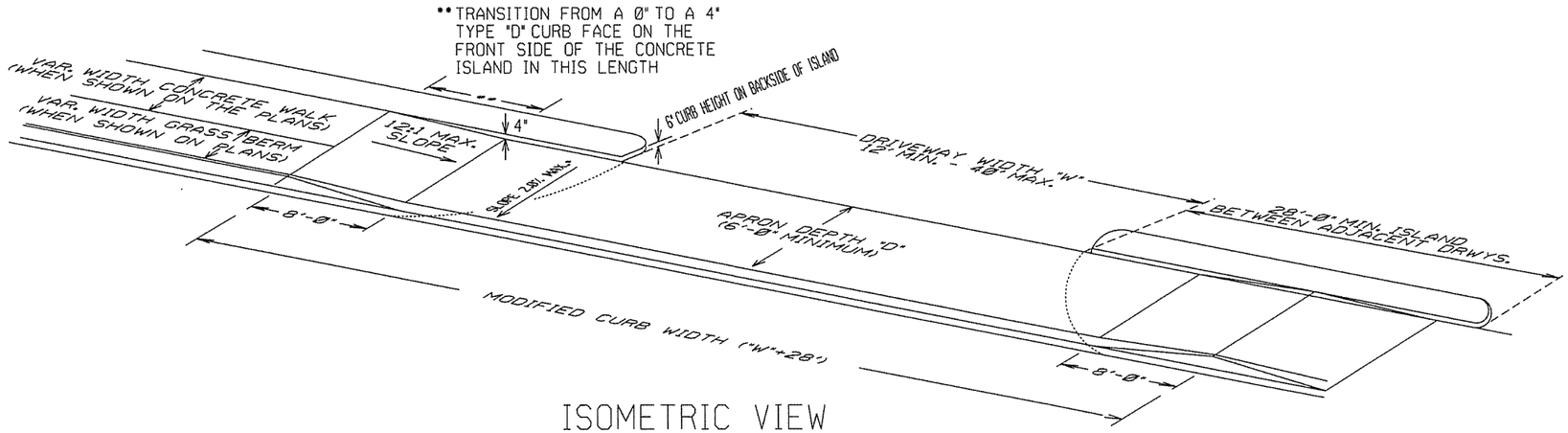
ARKANSAS STATE HIGHWAY COMMISSION

CURBING DETAILS

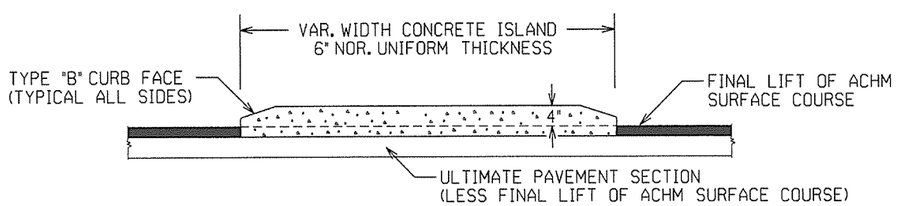
STANDARD DRAWING CG-1



PLAN VIEW

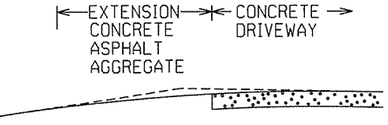


ISOMETRIC VIEW



CURBED ISLANDS FOR CHANNELIZATION

REFER TO PLANS FOR TYPE OF CURB FACE TO BE USED. NO DIRECT PAYMENT WILL BE MADE FOR THE CURB FACES SHOWN ON THE ISLAND DETAILS. PAYMENT FOR THE CURB FACE WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE ITEM "CONCRETE ISLAND".



EXTENSION TYPICAL SECTIONS

1: CONCRETE - 6" P.C. CONCRETE DRIVEWAY

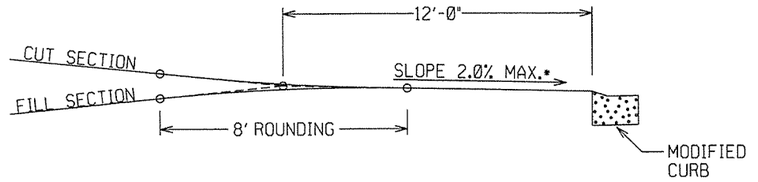
2: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
4" ACHM BINDER COURSE.(1") OR
4" ACHM BASE COURSE (1-1/2")

3: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
7" AGGREGATE BASE COURSE

4: AGGREGATE - 6" AGGREGATE BASE COURSE

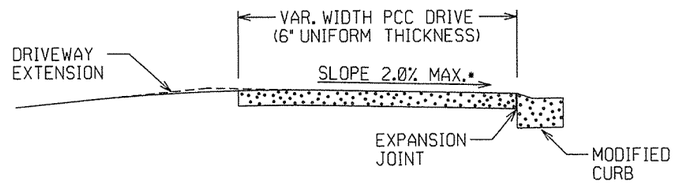
THE TYPE OF EXTENSION SHALL BE AS SHOWN IN THE PLANS. THE CONTRACTOR MAY, WITH THE APPROVAL OF THE ENGINEER, SUBSTITUTE A LOWER NUMBERED TYPE OF EXTENSION IN LIEU OF THE TYPE SPECIFIED IN THE PLANS, BUT AT NO ADDITIONAL COST TO THE DEPARTMENT.

DRIVEWAY EXTENSION DETAILS

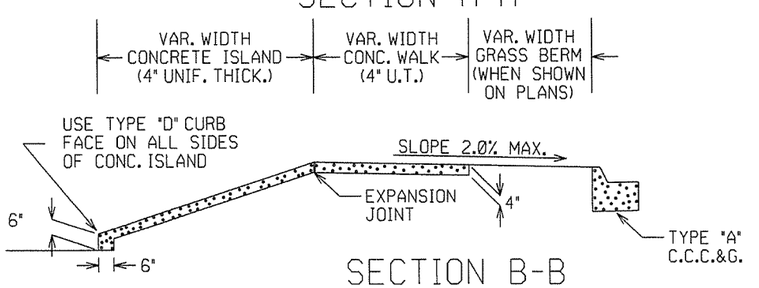


DRIVEWAY VERTICAL ALIGNMENT DETAILS

* NOTE: DRIVEWAYS MAY NOT BE SLOPED AWAY FROM THE ROADWAY UNLESS APPROVED BY THE ENGINEER.



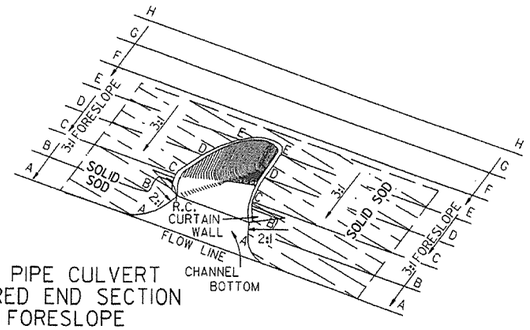
SECTION A-A



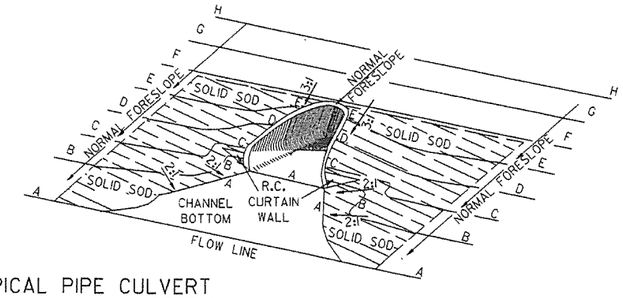
SECTION B-B
CURBED ISLAND BEHIND WALK

DATE REV	DATE FILMED	DESCRIPTION
2-27-14		REVISED PLAN & ISOMETRIC VIEW
11-29-07		ADDED CHANNELIZATION ISLAND WITH TYPE C CURB FACE & REVISED DRIVEWAY SLOPE NOTE & VERTICAL ALIGNMENT DETAIL
11-10-05		REV. APRON SLOPE & DEPTH OF AGG. BASE.
8-22-02		ADDED ISLAND DETAILS & NOTES
3-30-00		REV. MOD. CURB WIDTH & TRANS. NOTE
11-19-98		REVISED NOTES
11-18-98		REDRAWN AND REISSUED

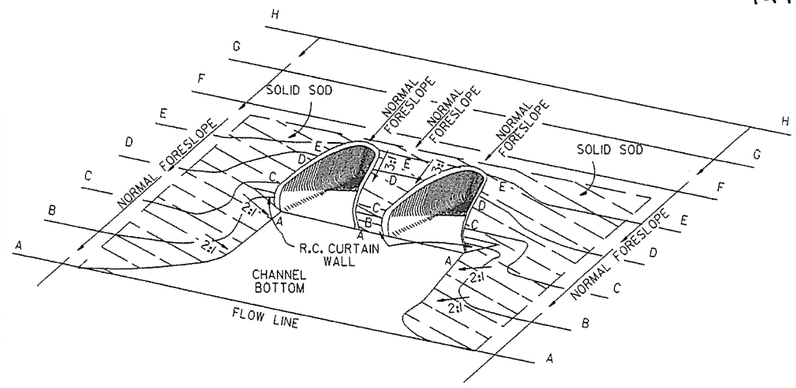
ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF DRIVEWAYS & ISLANDS
STANDARD DRAWING DR-1



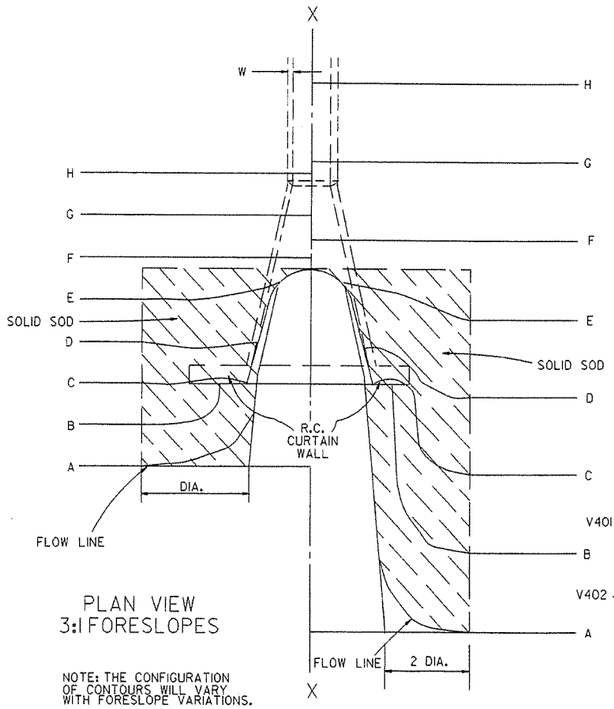
TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& 3:1 FORESLOPE



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& FLATTENED ADJACENT SLOPES



TYPICAL MULTIPLE PIPE CULVERT
WITH FLARED END SECTIONS
& FLATTENED ADJACENT SLOPES



PLAN VIEW
3:1 FORESLOPES

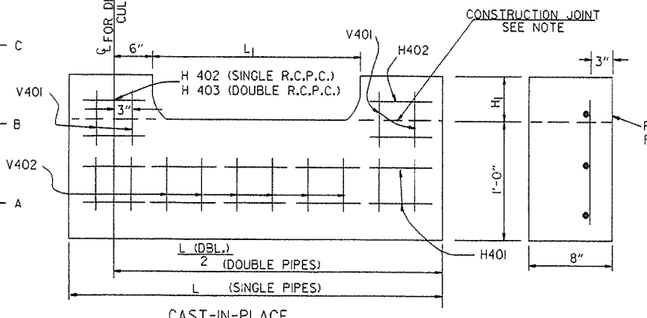
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES

R.C. CURTAIN WALL DIMENSIONS & QUANTITIES

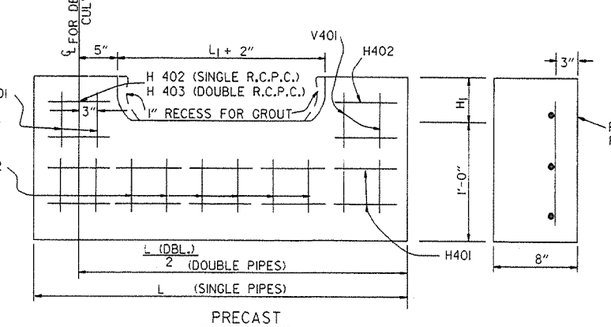
PIPE DIA.	H_1	L_1	L	L (DBL.)/2	SINGLE R.C.P.C. CONC.	SINGLE R.C.P.C. REINF. STEEL	DOUBLE R.C.P.C. CONC.	DOUBLE R.C.P.C. REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	39.0	0.67	59.0
36"	1'-7"	6'-8"	13'-0"	10'-6"	0.58	52.6	0.83	73.9
42"	2'-1½"	7'-3"	15'-6"	12'-0"	0.82	77.1	1.10	100.7
48"	2'-5"	7'-10"	17'-0"	13'-0"	0.98	94.9	1.27	120.4
54"	2'-9½"	8'-5"	18'-6"	14'-0"	1.16	115.8	1.47	143.7
60"	3'-4"	9'-0"	20'-6"	15'-6"	1.47	149.7	1.84	180.3
72"	4'-5"	10'-2"	25'-6"	18'-6"	2.31	232.6	2.73	271.0

NOTE: QUANTITIES SHOWN ARE FOR ONE (1) CURTAIN WALL.



CAST-IN-PLACE

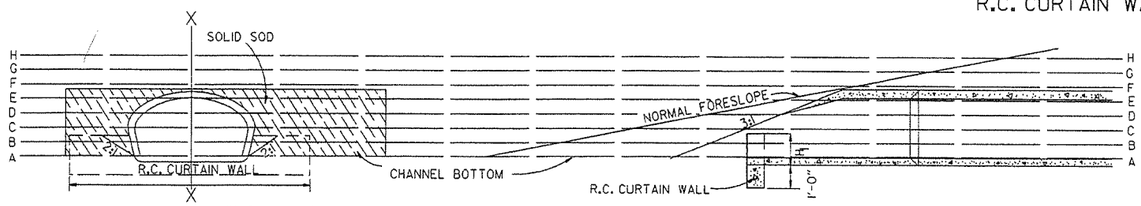
NOTE: THE PORTION OF THE R.C. CURTAIN WALL BENEATH THE FLARED END SECTION (LOWER 1'-0") SHALL BE PLACED MONOLITHICALLY. THE FLARED END SECTION SHALL THEN BE SET IN PLACE & THE REMAINING PORTIONS OF THE R.C. CURTAIN WALL PLACED.



PRECAST

NOTE: THE PRECAST CURTAIN WALL WILL BE SET AND BACKFILLED WITH COMPACTED MATERIAL. THE FLARED END SECTION SHALL THEN BE SET IN PLACE AND THE 1" RECESS FILLED WITH GROUT. WHERE "L" EXCEEDS 11' THE CURTAIN WALL MAY BE CAST IN TWO (2) OR MORE SECTIONS. THE METHOD OF JOINING THE SECTIONS FOR INSTALLATION SHALL BE APPROVED BY THE ENGINEER.

R.C. CURTAIN WALL DETAILS



END VIEW

SECTIONAL VIEW "X-X"

REINFORCING STEEL SCHEDULE

PIPE DIA.	SINGLE R.C. PIPE CULVERT H401 L	H401 NO.	H402 L	H402 NO.	V401 L	V401 NO.	V402 L	V402 NO.	DOUBLE R.C. PIPE CULVERT H401 L	H401 NO.	H402 L	H402 NO.	H403 L	H403 NO.	V401 L	V401 NO.	V402 L	V402 NO.
18"	7'-8"	2	1'-11½"	4	1'-7½"	8	8"	8	12'-2"	2	1'-11½"	4	8"	2	1'-7½"	10	8"	14
24"	9'-2"	2	2'-2"	4	1'-8½"	10	8"	9	14'-8"	2	2'-2"	4	8"	2	1'-8½"	12	8"	18
30"	10'-8"	2	2'-4½"	4	1'-11½"	10	8"	12	17'-8"	2	2'-4½"	4	8"	2	1'-11½"	14	8"	22
36"	12'-8"	2	2'-10"	6	2'-3"	12	8"	14	20'-8"	2	2'-10"	6	8"	3	2'-3"	14	8"	28
42"	15'-2"	2	3'-9½"	8	2'-9½"	16	8"	15	23'-8"	2	3'-9½"	8	8"	4	2'-9½"	18	8"	30
48"	16'-8"	2	4'-3"	10	3'-1"	18	8"	16	25'-8"	2	4'-3"	10	8"	5	3'-1"	20	8"	32
54"	18'-2"	2	4'-8½"	12	3'-5½"	20	8"	17	27'-8"	2	4'-9"	12	8"	6	3'-5½"	22	8"	34
60"	20'-2"	2	5'-5"	14	4'-0"	24	8"	18	30'-8"	2	5'-5"	14	8"	7	4'-0"	26	8"	36
72"	25'-2"	2	7'-4"	18	5'-1"	30	8"	20	36'-8"	2	7'-4"	18	8"	9	5'-1"	33	8"	40

ALL REINFORCING STEEL #4 BARS @ 6" O.C.

SOLID SODDING

PIPE DIA.	SINGLE R.C.P.C. 3:1	4:1	6:1	DOUBLE R.C.P.C. 3:1	4:1	6:1
	SQ. YDS.			SQ. YDS.		
18"	5	7	12	6	8	13
24"	8	12	19	9	13	20
30"	13	18	29	14	19	30
36"	17	26	41	18	28	43
42"	23	35	55	25	37	57
48"	29	46	68	31	48	70
54"	35	57	85	37	59	87
60"	45	62	104	48	65	107
72"	64	92	156	67	95	159

NOTE: QUANTITIES SHOWN ABOVE ARE FOR ONE (1) END OF F.E.S.

GENERAL NOTES

1. A CAST-IN-PLACE OR PRECAST CURTAIN WALL MAY BE USED. PAYMENT FOR THE CURTAIN WALL SHALL BE CONSIDERED TO BE INCLUDED IN THE UNIT PRICE BID EACH FOR FLARED END SECTIONS OF THE SEVERAL SIZES, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS INCLUDING REINFORCING STEEL AND CONCRETE: FOR FORMS, MIXING AND PLACING; FOR EXCAVATION AND BACKFILL, AND FOR ALL LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED ¾".
3. CONCRETE FOR CURTAIN WALL SHALL MEET THE REQUIREMENTS FOR CLASS A OR S CONCRETE AS PROVIDED IN SECTION 802 OF THE STANDARD SPECIFICATIONS OR FOR PAVING CONCRETE AS PROVIDED IN SECTION 501 OF THE STANDARD SPECIFICATIONS.
4. WELDED WIRE MESH 3 x 3 W10 x W10 MAY BE USED IN LIEU OF REINFORCING BARS.

DATE	REVISION	FILMED
10-18-96	ADDED NOTE TO SOLID SODDING	10-18-96
10-12-95	CORRECTED SPELLING	
11- 3-94	ADDED GENERAL NOTE NO. 4	
8-15-91	REV. CURTAIN WALL QUANT. STEEL SCH. & SOLID SOD QUANT.	
3-2-81	ALLOW PRECAST IN 2 OR MORE PIECES CHAMFER EDGES	
5-15-80	ADDED PRECAST WALL & GENERAL NOTES	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

STANDARD DRAWING FES-1

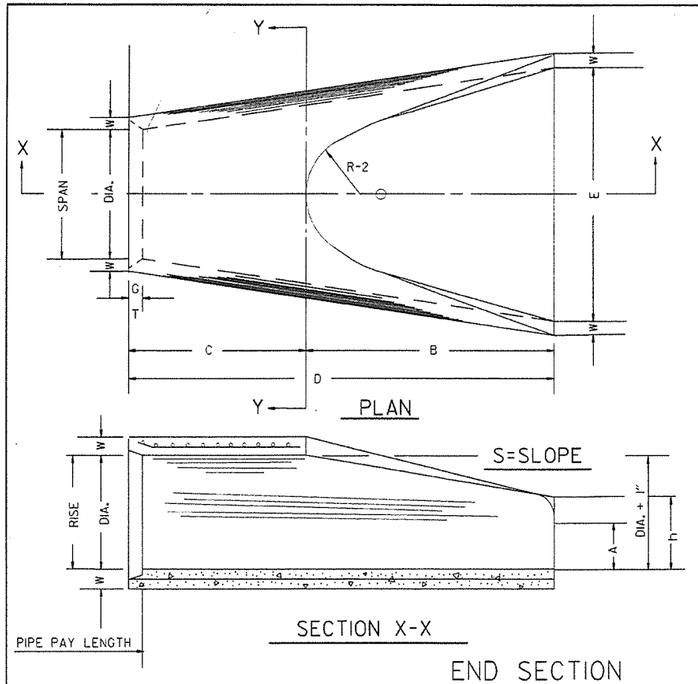


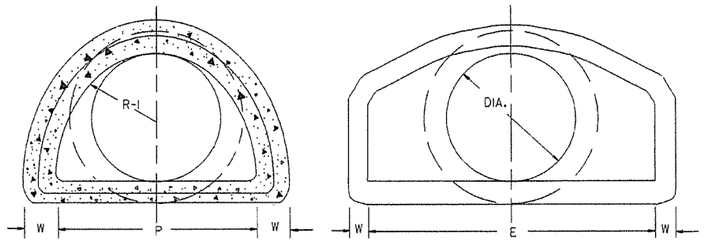
TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. ± 1"	P	R-1	R-2	G-T	WT.	h
18"	2½"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3:1	19"	29"	15½"	12"	2"	1000	1'-0½"
24"	3"	9½"	3'-7½"	2'-6"	6'-1½"	4'-0"	3:1	25"	33 3/16"	16 13/16"	14"	2½"	1600	1'-1½"
30"	3½"	1'-0"	4'-6"	1'-7¾"	6'-1¾"	5'-0"	3:1	31"	37"	18½"	15"	3¼"	1940	1'-4⅝"
36"	4"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	6'-0"	3:1	37"	47 11/16"	24 5/16"	20"	3½"	4100	1'-8"
42"	4½"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3:1	43"	53 7/16"	27½"	22"	3½"	5380	2'-2½"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3:1	49"	56½"	28½"	22"	3½"	6550	2'-6"
54"	5½"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3:1	55"	65½"	33⅛"	24"	4"	8750	2'-10½"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3:1	61"	72½"	36 11/16"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77 11/16"	38 5/16"	24"	5"	13250	4'-6"

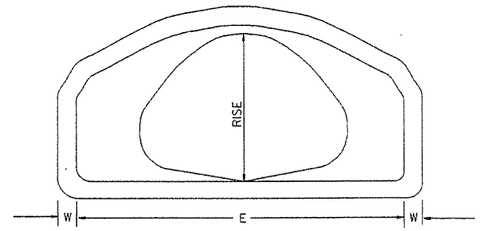
ARCH PIPE

EQUIV. DIA.	• SPAN AASHTO M 206	• SPAN AHD NOMINAL	• RISE AASHTO M 206	• RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
	INCHES													
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1½"	2½:1
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32⅛"	13"	2½"	2½:1
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34⅛"	14"	2½"	2½:1
24	28½	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36 11/16"	15"	2½"	2½:1
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-1½"	6'-0"	47 11/16"	20"	3"	2½:1
36	43¾	44	26⅝	27	4"	10½"	4'-0"	2'-11½"	6'-1½"	6'-6"	54 5/16"	22"	3½"	2½:1
42	51⅛	51	31 5/16	31	4½"	11½"	4'-7"	1-10¼"	6'-5¼"	7'-2"	59½"	23"	3¾"	2½:1
48	58½	59	36	36	5"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	7'-10"	70 5/16"	24"	4¼"	2½:1
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72 1/16"	24"	4¾"	2¼:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77 11/16"	24"	5"	2¼:1

• THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.

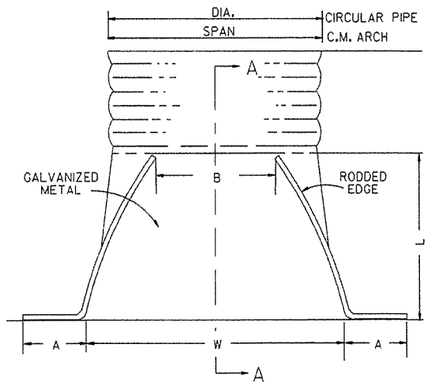


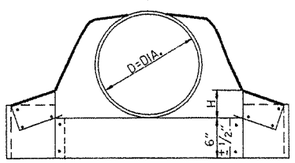
NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION



END VIEW
CONCRETE ARCH PIPE

END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS

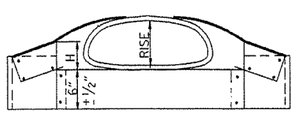




CIRCULAR PIPE

CIRCULAR PIPE

D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½:1
15	16	7	8	6	26	30	2½:1
18	16	8	10	6	31	36	2½:1
21	16	9	12	6	36	42	2½:1
24	16	10	13	6	41	48	2½:1
30	14	12	16	8	51	60	2½:1
36	14	14	19	9	60	72	2½:1
42	12	16	22	11	69	84	2½:1
48	12	18	27	12	78	90	2½:1
54	12	18	30	12	84	102	2:1
60	12	18	33	12	87	114	1¾:1
66	12	18	36	12	87	120	1½:1
72	12	18	39	12	87	126	1 1/3:1



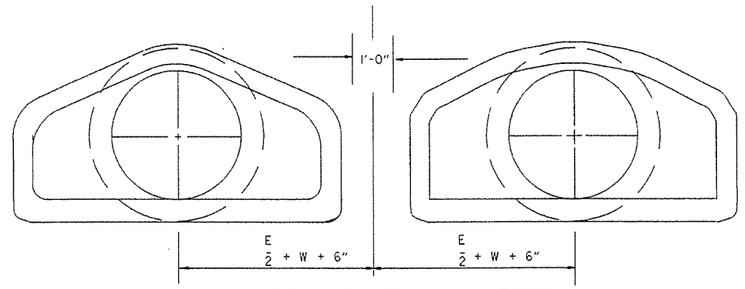
C.M. ARCH PIPE

C.M. ARCH PIPE

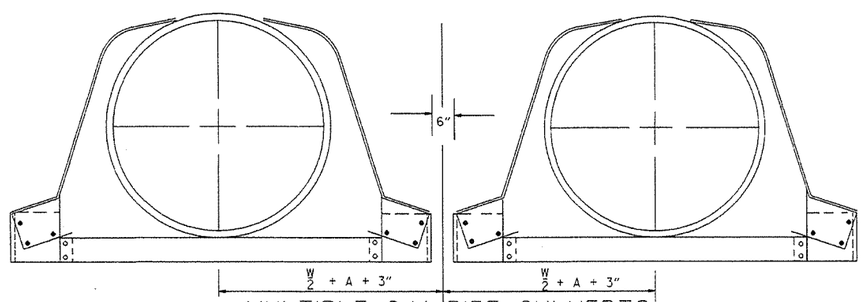
EQUIV. DIA.	SPAN	RISE	A 1" ±	B MAX.	H 1" ±	L 1½" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2½:1	16
18"	21	15	7	10	6	23	36	2½:1	16
21"	24	18	8	12	6	28	42	2½:1	16
24"	28	20	9	14	6	32	48	2½:1	16
30"	35	24	10	16	6	39	60	2½:1	14
36"	42	29	12	18	8	46	75	2½:1	14
42"	49	33	13	21	9	53	85	2½:1	12
48"	57	38	18	26	12	63	90	2½:1	12
54"	64	43	18	30	12	70	102	2¼:1	12
60"	71	47	18	33	12	77	114	2¼:1	12

NOTE: ALTERNATE CONNECTIONS TO THE PIPE CULVERTS, IN ACCORDANCE WITH MANUFACTURER'S STANDARD PRACTICES, MAY BE MADE SUBJECT TO THE APPROVAL OF THE ENGINEER.

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS



MULTIPLE R.C. PIPE CULVERTS



MULTIPLE C.M. PIPE CULVERTS

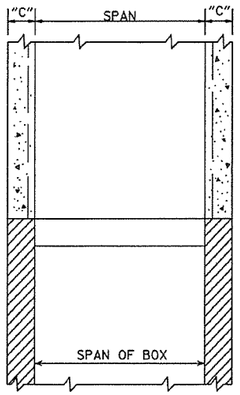
DATE	REVISION	FILMED
10-18-96	REVISED ASTM REF. TO AASHTO	10-18-96
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S.	664-5-15-80
7-14-78	C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES	752-7-14-78
8-22-75	ADDED MULTIPLE PIPE CULVERTS	517-8-22-75
12-5-74	REMOVED NOTE RE REINF. FOR R.C. F.E.S.	500-12-5-74
5-24-73	CMP END SECTION, SHOW PIPE PAY LENGTH	627-5-24-73
10-2-72	REVISED AND REDRAWN	760-10-2-72

ARKANSAS STATE HIGHWAY COMMISION

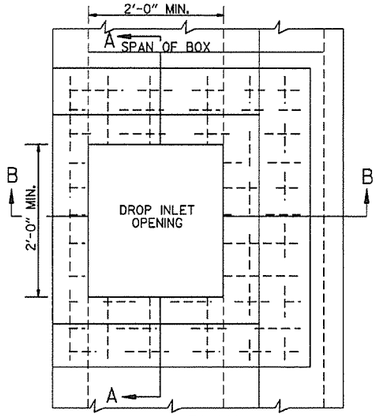
FLARED END SECTION

STANDARD DRAWING FES-2

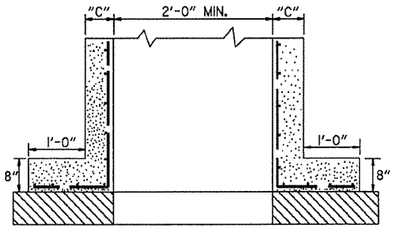
stdfes2.dgn



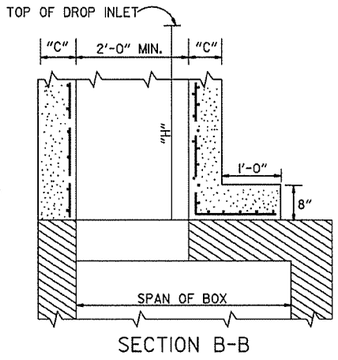
SECTION B-B



PLAN

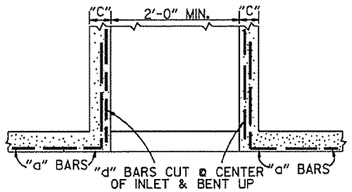


SECTION A-A

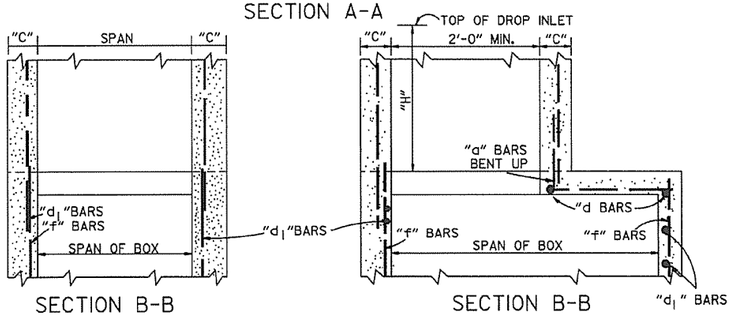


SECTION B-B

METHOD OF CONSTRUCTING DROP INLET ON EXISTING R.C. BOX CULVERT



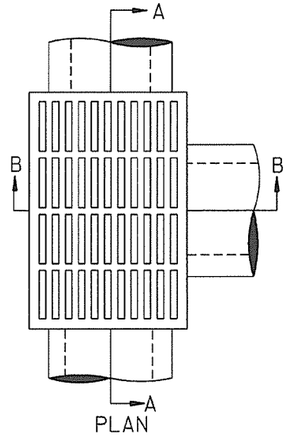
SECTION A-A



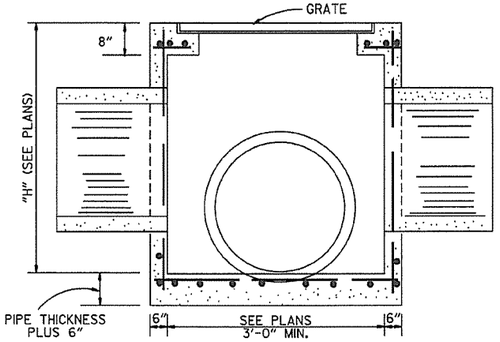
SECTION B-B SECTION B-B

METHOD OF CONSTRUCTING DROP INLET ON NEW R.C. BOX CULVERT

NOTE: "C" DIMENSIONS AND REINFORCING BAR SIZES, SHALL CONFORM TO THOSE SHOWN ON STANDARD DRAWING FOR DROP INLET.

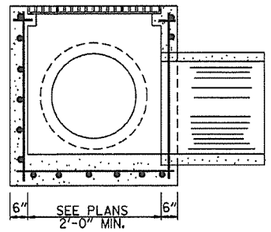


PLAN



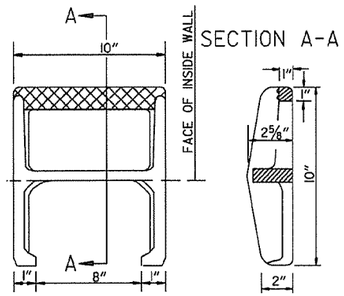
SECTION A-A

NOTE: REINF. BARS TO BE #4 BARS ON 6" CTRS. WITH 1½" MIN. COVER. THIS TYPE DROP INLET TO BE USED WHERE NOT SUBJECTED TO TRAFFIC.



SECTION B-B

DROP INLET (TYPE E)

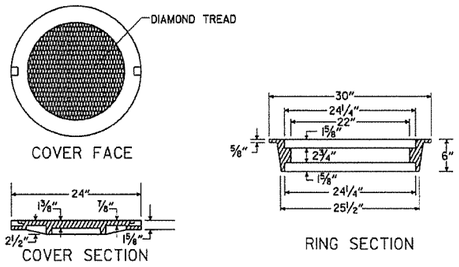


APPROX. WEIGHT = 11 LBS. (CAST IRON)

PLAN

NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.

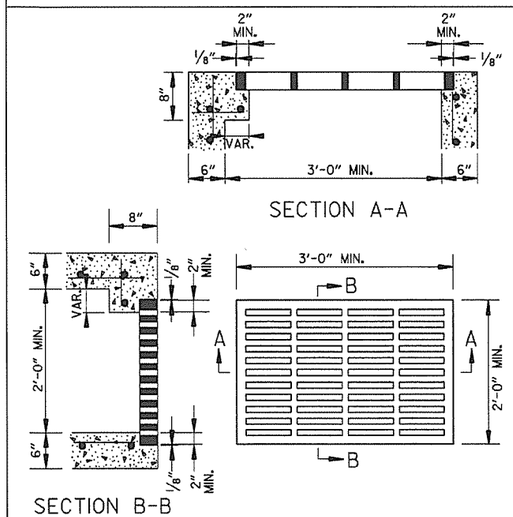
DETAIL OF STEP FOR DROP INLET



COVER SECTION RING SECTION

APPROXIMATE TOTAL WEIGHT = 333 LBS.

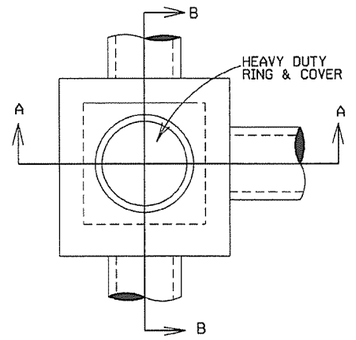
HEAVY DUTY RING & COVER



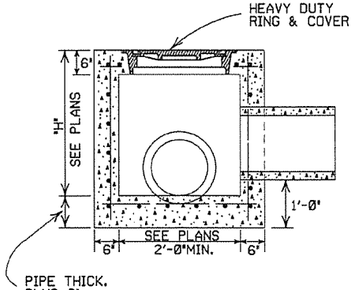
SECTION A-A SECTION B-B

APPROXIMATE MINIMUM WATERWAY OPENING = 260 SQ. IN.

GRATE FOR TYPE E DROP INLET

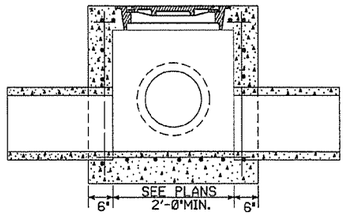


PLAN



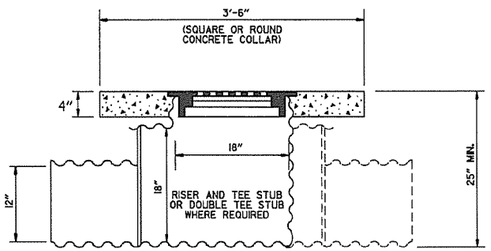
SECTION A-A

NOTE: REINF. BARS TO BE #4 BARS ON 6" CTRS. WITH 1½" MIN. COVER. THIS TYPE JUNCTION BOX TO BE USED WHERE NOT SUBJECTED TO TRAFFIC.

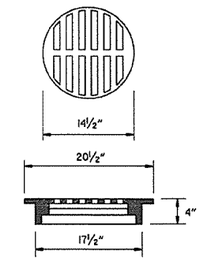


SECTION B-B

JUNCTION BOX (TYPE E)



NOTE: CONCRETE COLLAR TO BE CAST IN PLACE. 12" PIPE CULVERTS TO BE MEASURED AND PAID FOR AS " 12" SIDE DRAIN ".



USE NEENAH R-5901-C OR EQUIVALENT BICYCLE SAFE FRAME AND GRATE

DETAIL OF YARD DRAIN

GENERAL NOTES:

1. ALL EXPOSED CORNERS SHALL BE ¾" CHAMFERED.
2. STEPS SHALL BE INSTALLED ON 16" CENTERS ON ALL INLETS 4'-0" HIGH OR OVER, OR AS APPROVED BY THE ENGINEER.
3. EXPANSION JOINT MATERIAL SHALL BE ¾" PREFORMED FIBER.
4. GRATE OR GRATE AND FRAME SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105 CLASS 35B. GRATE MAY BE USED WITHOUT FRAME.
5. GRATE AND FRAME SHALL NOT BE PAINTED.
6. GRATE SHALL BE BICYCLE SAFE.
7. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
8. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
9. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
10. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.

DATE REV.	REVISION	DATE FILMED
11-16-01	ADDED NOTE 10	
1-12-00	REVISED HEAVY DUTY RING & COVER	
7-02-98	CHANGED GRATE DETAIL, DELETED DI (TYPE D), REPLACED RING & COVER W/HEAVY DUTY RING & COVER, ADDED JUNCTION BOX (TYPE E)	
6-26-97	ADDED DIMENSION TO TYPE IV-A	
10-18-96	ADDED DETAIL OF YARD DRAIN	
8-15-91	DELETE TYPE IV GRATE	
7-15-88	REVISED STEP DETAIL	
5-20-83	REVISED DETAILS OF GRATES (TYPE IV & IV-A)	
2-4-83	ADDED GENERAL NOTE NO. 4	
3-2-81	ADDED TYPE IV-A GRATE	
5-22-74	DELETED INLET (TYPE F) & GRATE (TYPE III)	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLETS & JUNCTION BOXES

STANDARD DRAWING FPC-9

4'-0" LENGTH DROP INLET

PIPE SIZE	MIN. WIDTH	HEIGHT 5'-0" CLASS A CONC. CU. YDS.	HEIGHT 5'-0" REINF. STEEL POUNDS	PLUS OR MINUS PER LIN. FT. OF HEIGHT CLASS A CONC. CU. YDS.	PLUS OR MINUS PER LIN. FT. OF HEIGHT REINF. STEEL POUNDS
18"	2'-6"	1.77	156	0.28	22
24"	2'-6"	1.79	156	0.28	22
30"	3'-2"	2.39	205	0.30	26
36"	3'-8"	2.63	236	0.32	28
42"	4'-4"	2.95	250	0.34	30
48"	4'-10"	3.21	265	0.36	32

NOTE: QUANTITIES ARE APPROXIMATE AND ARE SHOWN FOR BIDDER INFORMATION ONLY.

DROP INLET EXTENSION

4'-0" CLASS A CONC. CU. YDS.	4'-0" REINF. STEEL POUNDS	8'-0" CLASS A CONC. CU. YDS.	8'-0" REINF. STEEL POUNDS
0.58	38	0.87	72

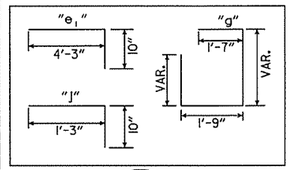
DEDUCT FROM QUANTITY COMPUTED FOR EACH EXTENSION ADDED.

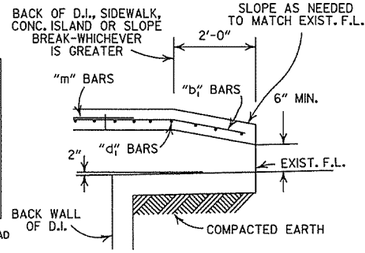
0.04	3		

DEDUCT FROM QUANTITY COMPUTED FOR EACH PIPE ENTERING INLET

INSIDE DIA. PIPE	CLASS A CONC.	REINF. STEEL
INCHES	CU. YDS.	POUNDS
18	0.05	2
24	0.09	3
30	0.13	4
42	0.24	8

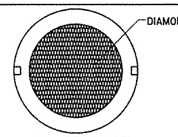
BAR DIAGRAM

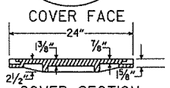


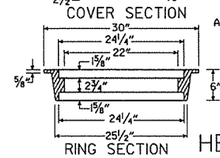


BACK OPENING

WHEN OPENING IN BACK IS CALLED FOR ON PLANS EXTEND OPENING AS SHOWN IN DETAIL. PAYMENT TO BE INCLUDED IN PRICE BID FOR DROP INLET (TYPE C).



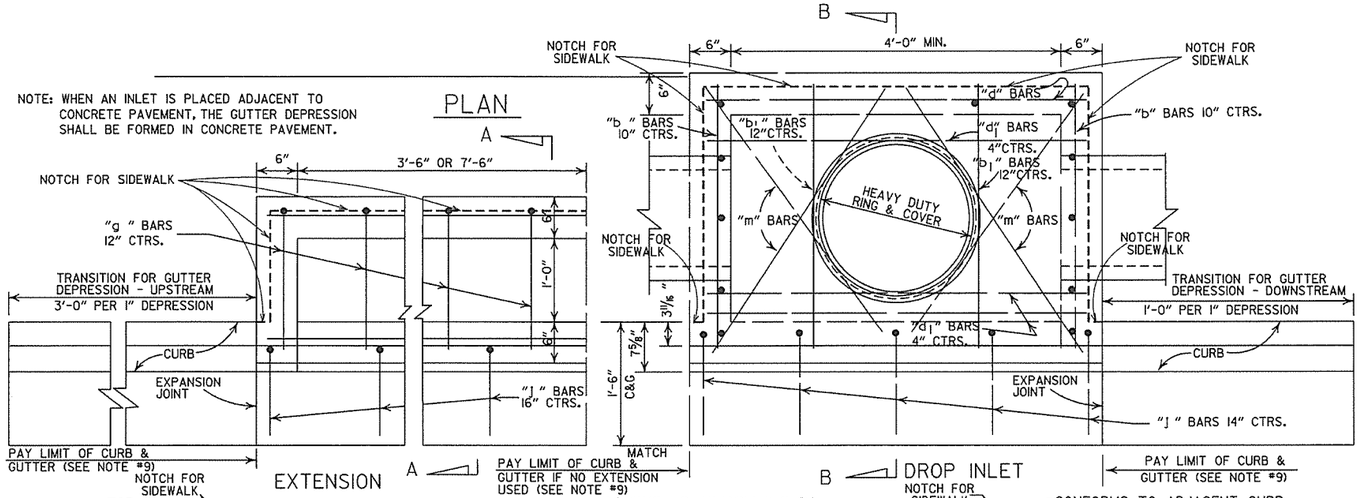


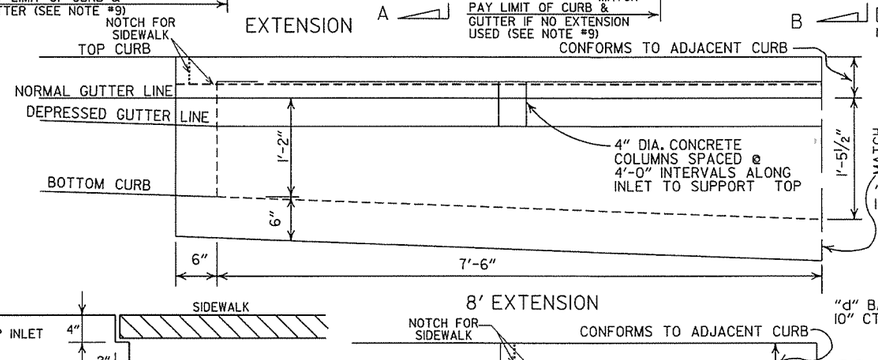


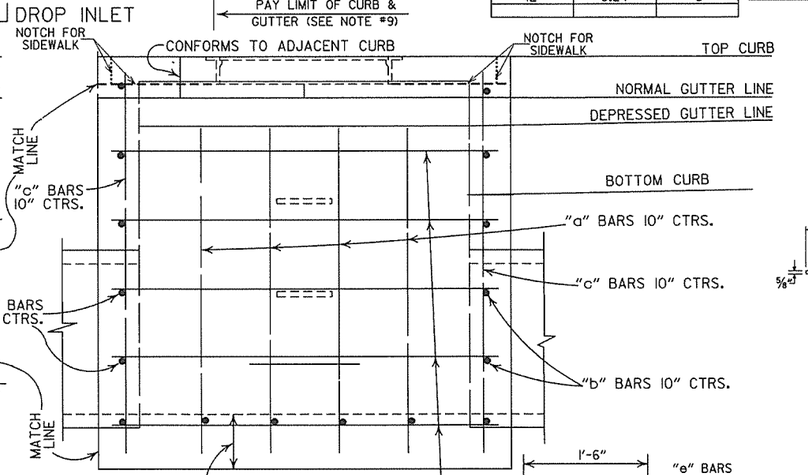
APPROXIMATE TOTAL WEIGHT = 333 LBS.

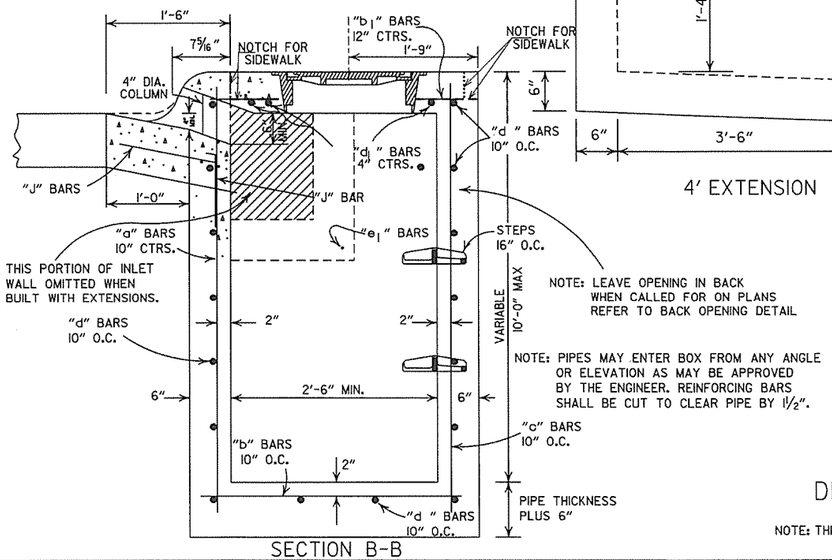
HEAVY DUTY RING & COVER

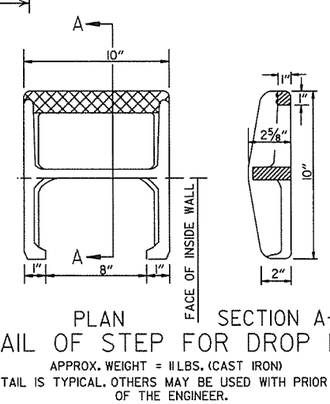
GENERAL NOTES:
1. ALL EXPOSED CORNERS TO HAVE 3/4" CHAMFER.
2. STEPS SHALL BE INSTALLED IN ALL INLETS 4'-0" HIGH AND OVER OF AS APPROVED BY THE ENGINEER.
3. ALL REINF. BARS SHALL BE #4 AND HAVE 1½" COVER.
4. DROP INLETS AND EXTENSION ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
5. THIS DROP INLET MAY BE CONSTRUCTED ON NEW OR EXISTING R.C. BOX CULVERT AS SHOWN ON F.P.C.-9.
6. WHEN PLANS CALL FOR DROP INLET OVER 10'-0" HIGH, FLOOR AND WALLS SHALL BE CONSTRUCTED AS SHOWN FOR TYPE "RM" DROP INLET (F.P.C.-9D).
7. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
8. DURING CONSTRUCTION OF THE ROADWAY THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO OR AROUND THE DROP INLET AS APPROVED BY THE ENGINEER.
9. PAYMENT FOR CURB AND/OR CURB AND GUTTER WITHIN THE LIMITS OF DROP INLETS AND DROP INLET EXTENSIONS SHALL BE CONSIDERED INCLUDED IN PAYMENT MADE FOR DROP INLETS AND/OR DROP INLET EXTENSIONS.
10. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
11. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
12. 4"x2" NOTCH SHALL BE FORMED IN ALL DROP INLETS TO SUPPORT SIDEWALK CONSTRUCTION. REFER TO DETAIL OF NOTCH FOR SIDEWALKS.
13. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.







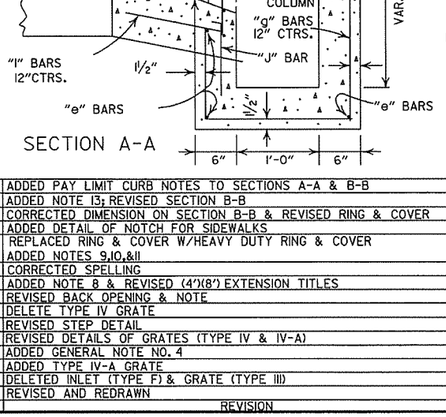




DETAIL OF STEP FOR DROP INLET

APPROX. WEIGHT = 11 LBS. (CAST IRON)

NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.



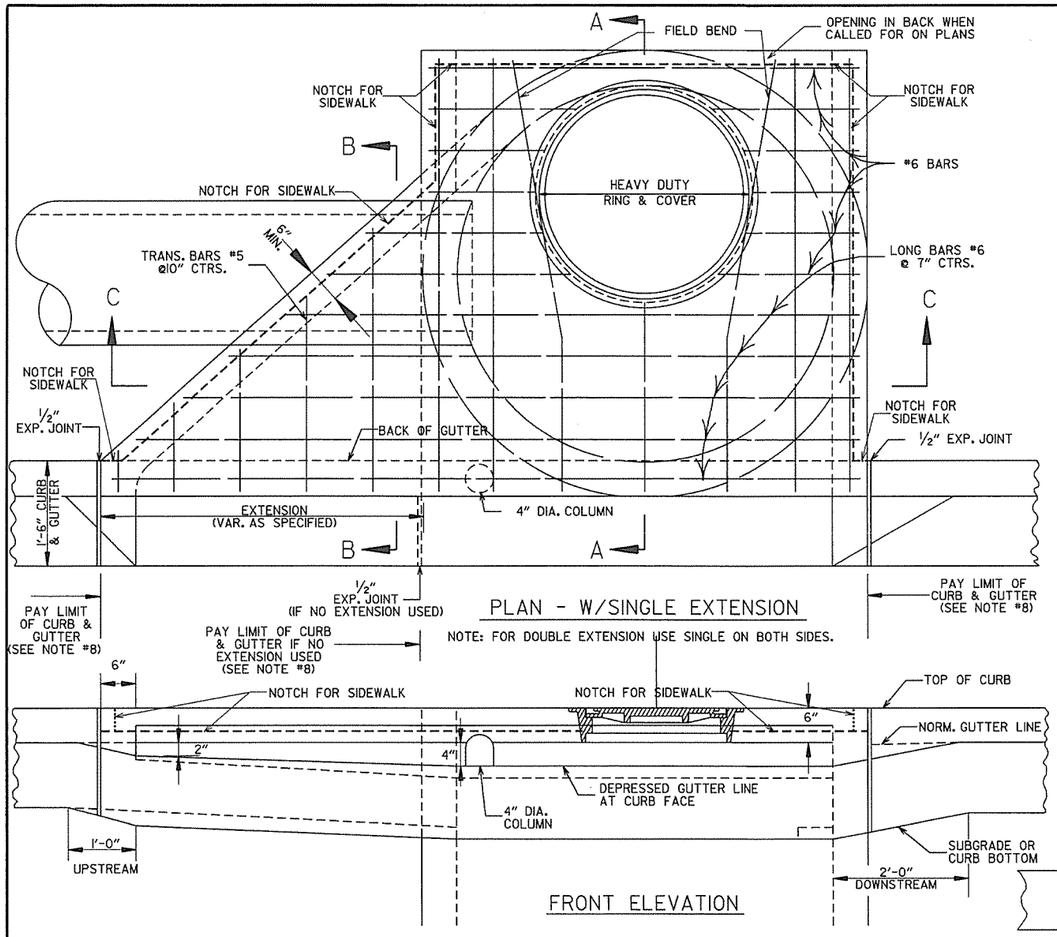
SECTION A-A

DATE REV.	REVISION	DATE FILMED
8-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01	ADDED NOTE 13; REVISED SECTION B-B	
1-12-00	CORRECTED DIMENSION ON SECTION B-B & REVISED RING & COVER	
5-13-99	ADDED DETAIL OF NOTCH FOR SIDEWALKS	
7-02-98	REPLACED RING & COVER W/HEAVY DUTY RING & COVER ADDED NOTES 9,10,&11	
10-18-96	CORRECTED SPELLING	
4-26-96	ADDED NOTE 8 & REVISED (4')(8') EXTENSION TITLES	10-18-96
4-1-93	REVISED BACK OPENING & NOTE	
8-15-91	DELETE TYPE IV GRATE	
7-15-88	REVISED STEP DETAIL	
5-20-83	REVISED DETAILS OF GRATES (TYPE IV & IV-A)	
2-4-83	ADDED GENERAL NOTE NO. 4	
3-2-81	ADDED TYPE IV-A GRATE	
5-22-74	DELETED INLET (TYPE F) & GRATE (TYPE III)	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLETS (TYPE C)

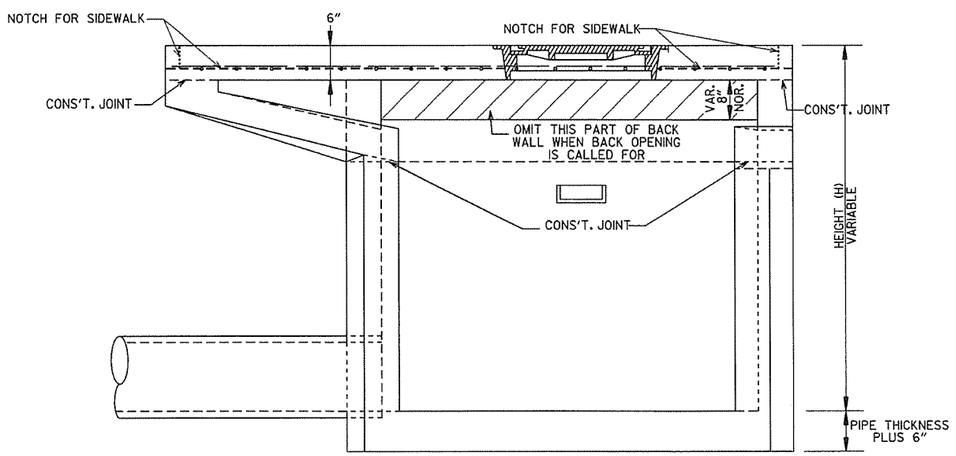
STANDARD DRAWING FPC-9E



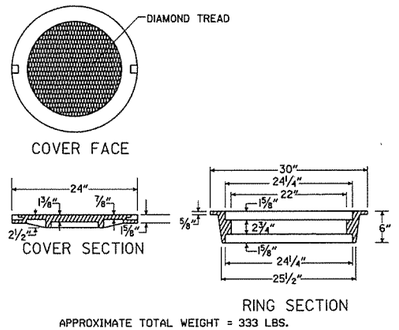
PLAN - W/SINGLE EXTENSION

NOTE: FOR DOUBLE EXTENSION USE SINGLE ON BOTH SIDES.

FRONT ELEVATION



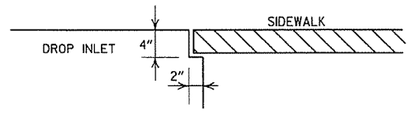
SECTION C-C



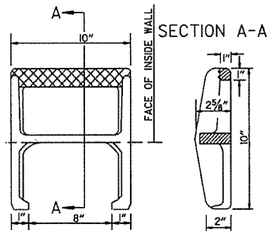
APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER

1. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
2. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
3. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.



DETAIL OF NOTCH FOR SIDEWALKS

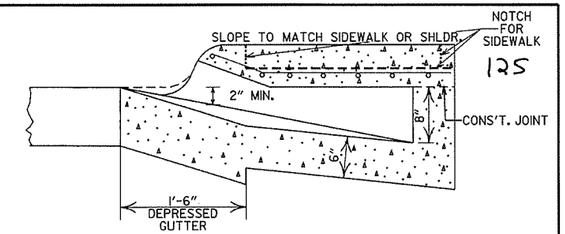


APPROX. WEIGHT = 11 LBS. (CAST IRON)

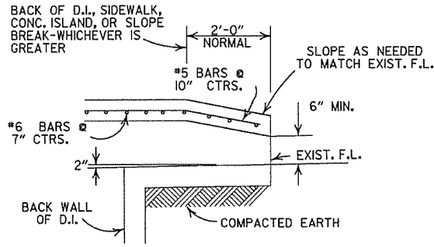
PLAN

NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.

DETAIL OF STEP FOR DROP INLET

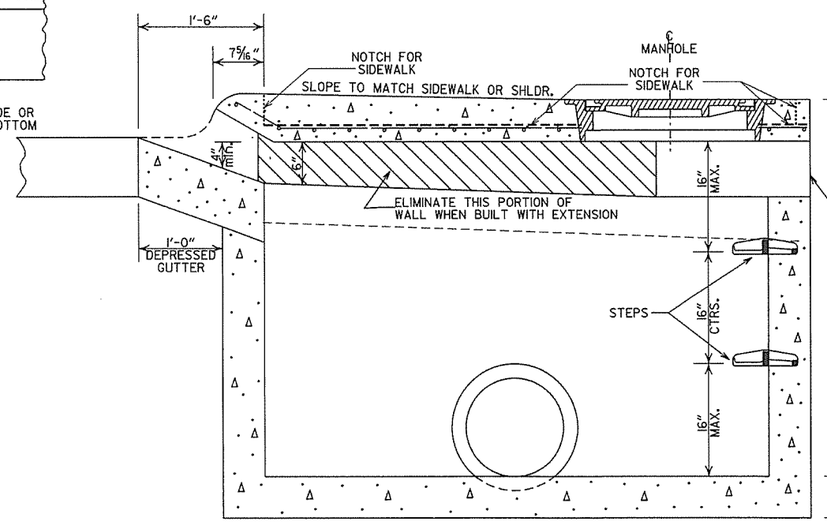


SECTION B-B



BACK OPENING

WHEN OPENING IN BACK IS CALLED FOR ON PLANS EXTEND OPENING AS SHOWN IN DETAIL. PAYMENT TO BE INCLUDED IN PRICE BID FOR DROP INLET (TYPE MO).



SECTION A-A

GENERAL NOTES:

1. ALL EXPOSED CORNERS TO HAVE ¾" CHAMFER.
2. STEPS SHALL BE INSTALLED IN ALL INLETS 4'-0" HIGH AND OVER OR AS DIRECTED BY THE ENGINEER.
3. ALL REINFORCING BARS SHALL BE GRADE 60 AND HAVE MIN. 1½" COVER.
4. DROP INLETS AND EXTENSION ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
5. 4" DIA. COLUMNS SPACED AT MAX. 4'-0" INTERVALS SHALL BE INSTALLED ALONG INLET AND EXTENSION TO SUPPORT TOP.
6. BASE AND INLET WALLS SHALL BE CAST MONOLITHICALLY.
7. THE THROAT SHALL BE CAST INTEGRALLY WITH THE GUTTER.
8. PAYMENT FOR CURB AND/OR CURB AND GUTTER WITHIN THE LIMITS OF DROP INLETS AND DROP INLET EXTENSIONS SHALL BE CONSIDERED INCLUDED IN PAYMENT MADE FOR DROP INLETS AND/OR DROP INLET EXTENSIONS.
9. PIPES MAY ENTER DROP INLET FROM ANY ANGLE OR ELEVATION AS MAY BE APPROVED BY THE ENGINEER.
10. APPROPRIATE SIZE TYPE C DROP INLETS MAY BE SUBSTITUTED FOR TYPE MO DROP INLETS AS APPROVED BY THE ENGINEER. PAYMENT TO BE AS DROP INLET (TYPE MO).
11. DURING CONSTRUCTION OF THE ROADWAY THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO OR AROUND THE DROP INLET AS APPROVED BY THE ENGINEER.
12. 4"x2" NOTCH SHALL BE FORMED IN ALL DROP INLETS TO SUPPORT SIDEWALK CONSTRUCTION. REFER TO DETAIL OF NOTCH FOR SIDEWALKS.
13. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.

LEAVE OPENING IN BACK WHEN CALLED FOR ON PLANS REFER TO BACK OPENING DETAIL

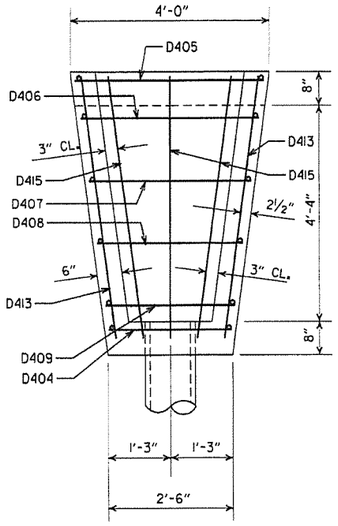
DIA. OF D.I.	DIA. OF OUTLET PIPE	MINIMUM WALL THICKNESS CAST IN PLACE	MINIMUM WALL THICKNESS PRECAST
4' I.D.	12" THRU 27"	6"	5"
5' I.D.	30" THRU 42"	8"	6"
6' I.D.	48" THRU 54"	8"	7"

DATE	REVISIONS	DATE FILMED
8-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01	ADDED NOTE 13	
1-12-00	REVISED HEAVY DUTY RING & COVER	
5-13-99	ADDED NOTCH DETAIL FOR SIDEWALKS	
7-02-98	REP. NOTE 8, REM. PLAN DET., REV. PICTURE FOR NEW RING & COVER, ADDED HEAVY DUTY RING & COVER AND DETAIL OF STEP FOR DROP INLET	
4-26-96	ADDED NOTE 11 ADJ. OPENING DIMENSION	
10-12-95	CORRECTED #6 BAR SPACING	
7-20-95	CORRECTED DIAMETER OF D.I. IN BOX	
2-9-95	TYPE C TO MO (OPEN, BACK DETAIL)	
11-3-94	REVISED GENERAL NOTES	11-3-94
4-1-93	REV. BACK OPEN DETAIL & NOTE	4-1-93
8-15-91	REVISED NOTES 11,12 & ADDED BK.OPEN DETAIL	8-15-91
11-30-89	ADDED NOTE NO. 12	11-30-89
5-23-89	ADDED NOTE & MINIMUM WALL THICKNESS	5-23-89
7-15-88	ADDED EXTEND NOTE TO SECTION A-A	7-15-88
1-14-87	MODIFIED WALL THICKNESS	1-14-87
6-12-87	ISSUED	6-12-87

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLET (TYPE MO)

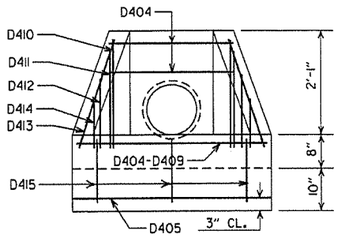
STANDARD DRAWING FPC-9M



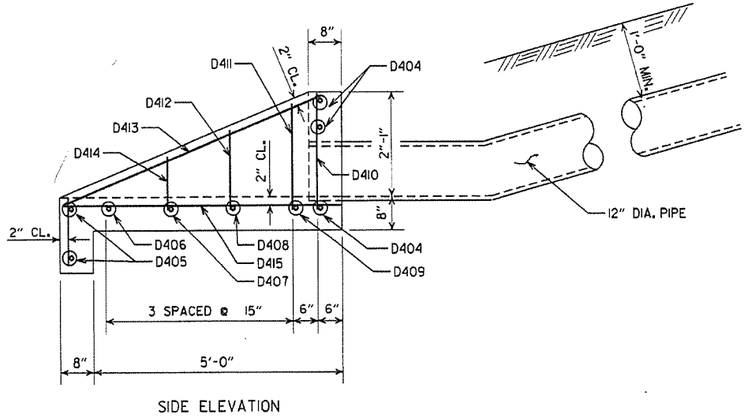
PLAN

BAR LIST (CONCRETE SPILLWAY)

MARK	NO. REQ'D.	LENGTH	BENDING DIAGRAM
D404	3	2'-2"	
D405	2	3'-8"	
D406	1	3'-5"	
D407	1	3'-1"	
D408	1	2'-9"	
D409	1	2'-5"	
D410	2	2'-5"	
D411	2	2'-2"	
D412	2	1'-9"	
D413	2	5'-6"	
D414	2	1'-2"	
D415	3	6'-5"	5'-4", 1'-2", 2" P.D., D415

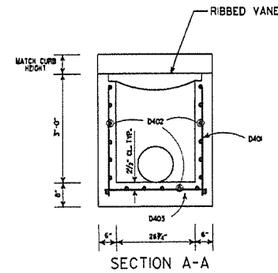


FRONT ELEVATION



SIDE ELEVATION
CONCRETE SPILLWAY

DETAILS OF CONCRETE SPILLWAY (TYPE A)

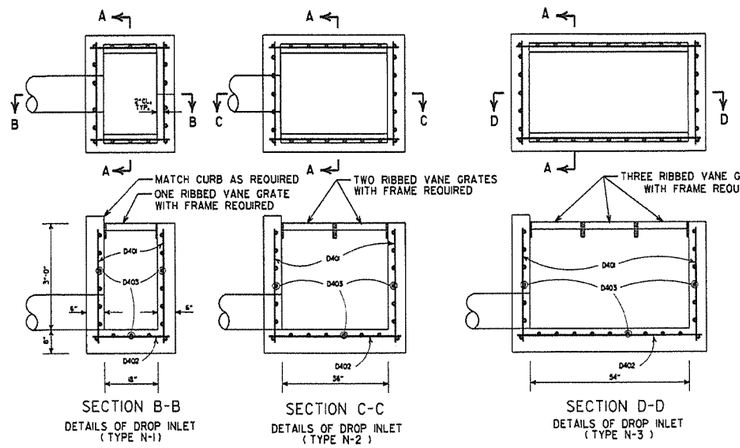


SECTION A-A

BAR LIST (DROP INLET)

MARK	TYPE N-1		TYPE N-2		TYPE N-3	
	NO. REQ'D.	LENGTH	NO. REQ'D.	LENGTH	NO. REQ'D.	LENGTH
D401	20	3'-0"	26	3'-0"	32	3'-0"
D402	19	2'-2"	19	3'-8"	19	5'-2"
D403	17	2'-11"	20	2'-11"	23	2'-11"

ALL BARS #4 @ 6" SPACING



SECTION B-B
DETAILS OF DROP INLET
(TYPE N-1)

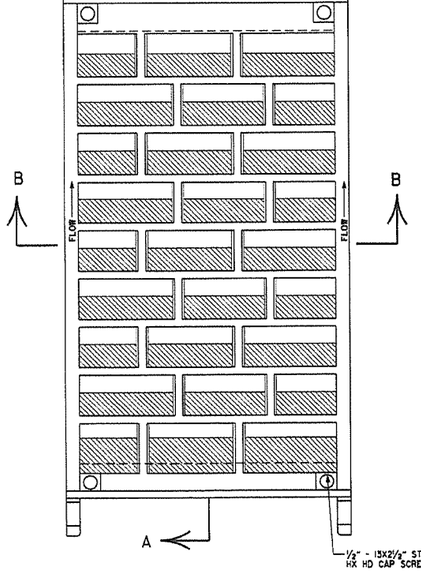
SECTION C-C
DETAILS OF DROP INLET
(TYPE N-2)

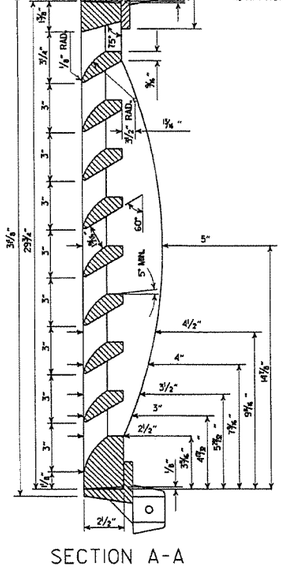
SECTION D-D
DETAILS OF DROP INLET
(TYPE N-3)

DETAILS OF DROP INLET

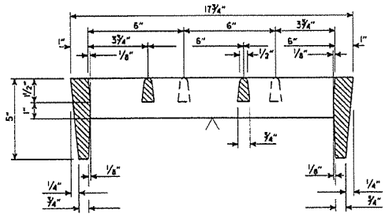
GENERAL NOTES (GRATE & FRAME)

1. RIBBED VANE GRATE AND FRAME SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105 CLASS 35B & AASHTO M 306.
2. GRATE AND FRAME SHALL NOT BE PAINTED.
3. GRATE AND FRAME SHALL BE INSTALLED IN DROP INLET IN ASSEMBLED POSITION.
4. APPROXIMATE WEIGHT OF GRATE SHALL BE 170 LBS.

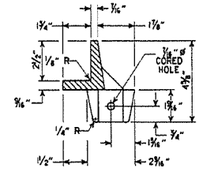




SECTION A-A



SECTION B-B



SECTION THRU FRAME

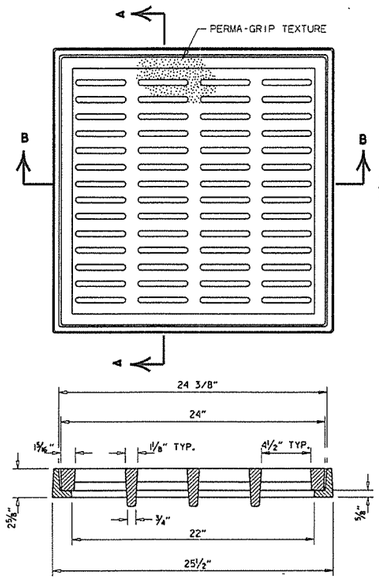
DETAILS OF RIBBED VANE GRATE AND FRAME

DATE REVISED	DATE FILMED	DESCRIPTION
7-02-98	7-2-98	REVISED SECT. A-A DETAIL OF DROP INLET & ADDED AASHTO REF. TO NOTE 1, REVISED GRATE
10-18-96		REVISED ASTM REF. TO AASHTO
8-15-91		ISSUED

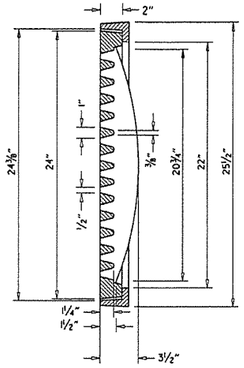
ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLETS AND SPILLWAY OUTLET

STANDARD DRAWING FPC-9N



SECTION B-B

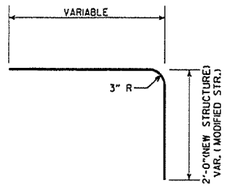


SECTION A-A

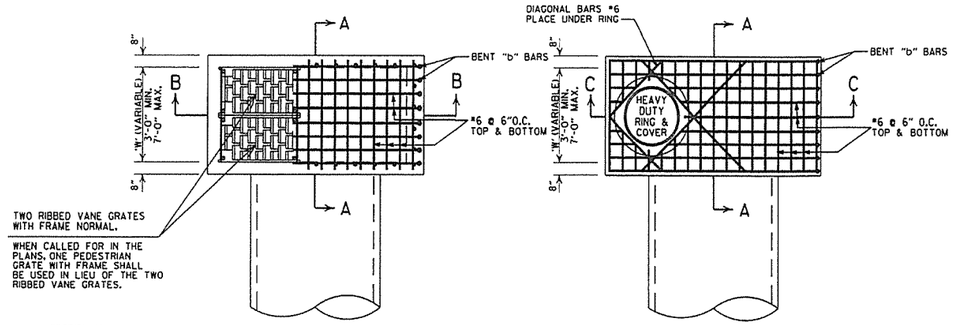
GENERAL NOTES (PEDESTRIAN GRATE & FRAME)

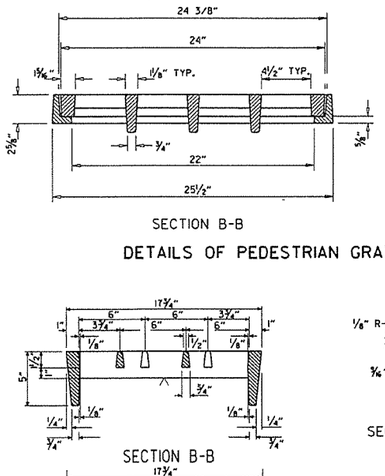
1. THE PEDESTRIAN GRATE SHALL BE ORIENTED IN THE TOP OF THE DROP INLET SO THAT THE ½" OPENINGS ARE PERPENDICULAR TO THE PATH OF PEDESTRIAN TRAVEL.
2. THE PEDESTRIAN GRATE AND FRAME SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105, CLASS 35B, & AASHTO M 306.
3. THE GRATE AND FRAME SHALL NOT BE PAINTED.
4. THE GRATE AND FRAME SHALL BE INSTALLED IN THE DROP INLET IN THE ASSEMBLED POSITION.
5. THE APPROXIMATE WEIGHT OF THE GRATE AND FRAME SHALL BE 211LBS.
6. THE MINIMUM WATERWAY OPENING SHALL BE 122 SQ. IN.

DETAILS OF PEDESTRIAN GRATE AND FRAME

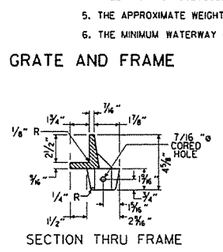


DETAIL OF BENT "b" BAR

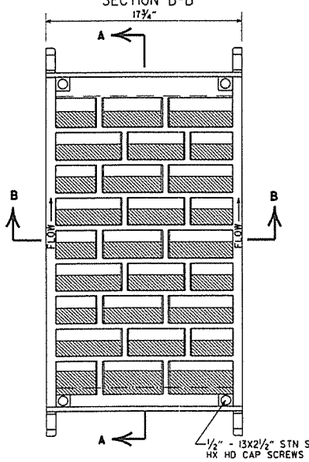


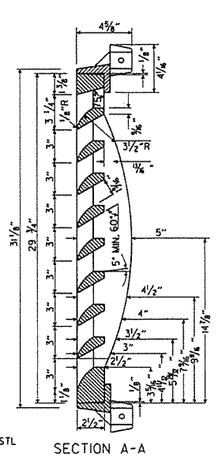


SECTION B-B



SECTION THRU FRAME



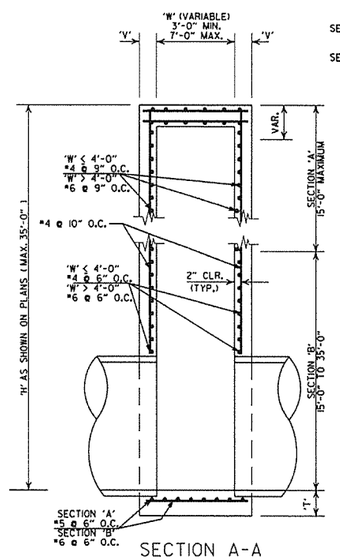


SECTION A-A

DETAILS OF RIBBED VANE GRATE AND FRAME

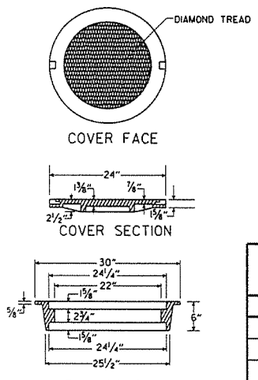
GENERAL NOTES (RIBBED VANE GRATE & FRAME)

1. RIBBED VANE GRATE AND FRAME SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105, CLASS 35B, & AASHTO M 306.
2. GRATE AND FRAME SHALL NOT BE PAINTED.
3. GRATE AND FRAME SHALL BE INSTALLED IN DROP INLET IN ASSEMBLED POSITION.
4. APPROXIMATE WEIGHT OF GRATE SHALL BE 170 LBS.



SECTION A-A

DETAILS OF DROP INLET
(TYPE ST)



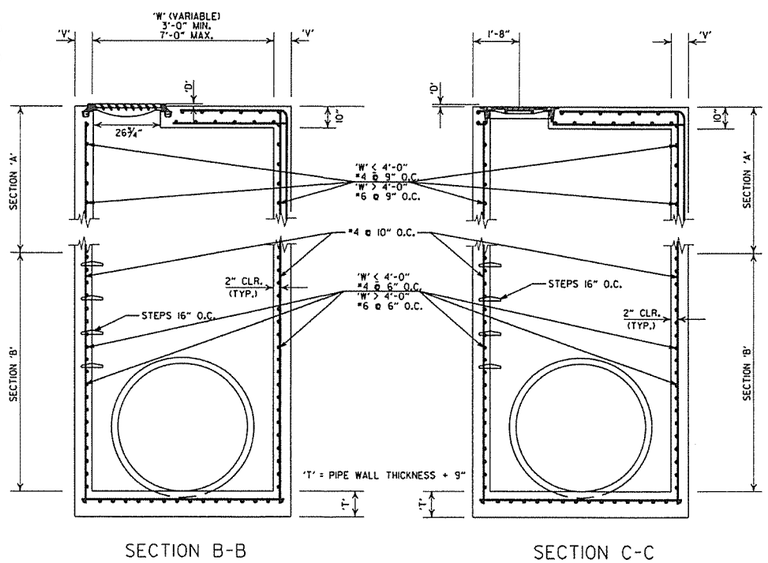
HEAVY DUTY
RING & COVER

APPROXIMATE TOTAL WEIGHT = 333 LBS.

SECTION 'A'
'V' = 8"

SECTION 'B' (W≤4'-0")
'V' = 8"

SECTION 'B' (W>4'-0")
'V' = 10"



SECTION B-B

SECTION C-C

DETAILS OF JUNCTION BOX
(TYPE ST)

GENERAL NOTES (TYPE ST DROP INLET & JUNCTION BOX)

1. THE 'D' DIMENSION SHALL MATCH THE FINAL LIFT OF ACHM SURFACE COURSE SHOWN IN THE PLANS WHEN ASPHALT PAVING SURROUNDS THE GRATE OR RING COVER, AND SHALL BE 0" AT OTHER INSTALLATIONS.
2. THE STEPS SHALL BE OMITTED WHERE 'H' IS LESS THAN 4'-0".
3. ALL EXPOSED CORNERS ARE TO HAVE A ¾" CHAMFER.

GENERAL NOTES (HEAVY DUTY RING & COVER):

1. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105, CLASS 35B, & AASHTO M 306.
2. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
3. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
4. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.

DATE REVISED	DATE FILMED	DESCRIPTION
7-26-12		REMOVED NOTE 4, REVISED 'T', REVISED BOTTOM SLAB REBAR FOR SECTION 'A', SHOWED REBAR CLEARANCE IN SECTIONS
11-16-01		ADDED NOTE 4
1-12-00		REVISED HEAVY DUTY RING & COVER
5-13-99		ADDED PEDESTRIAN FRAME & GRATE
7-02-98		REMOVED NOTE 5, REV. DIMENSIONS, ADDED HEAVY DUTY RING & COVER ADDED AASHTO REF. REVISED GRATE
10-18-96		REVISED ASTM REF. TO AASHTO
10-1-92		REVISED & REISSUED
8-15-91	8-15-91	REVISED & REISSUED

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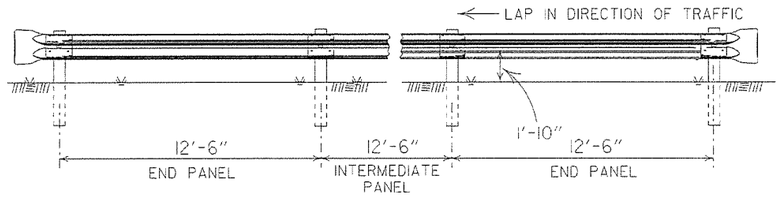
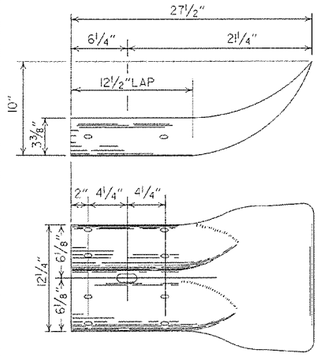
DETAILS OF DROP INLET & JUNCTION BOX (TYPE ST)

STANDARD DRAWING FPC-9S

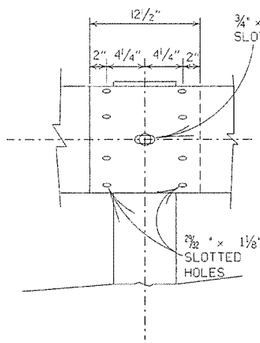
PLAN



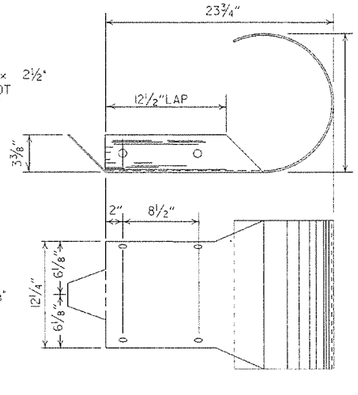
ELEVATION



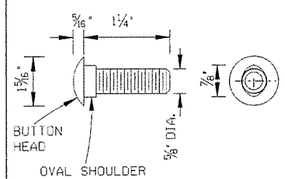
TERMINAL SECTION



RAIL SPLICE

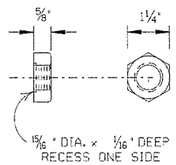


TERMINAL SECTION

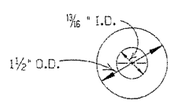


SPLICE BOLT

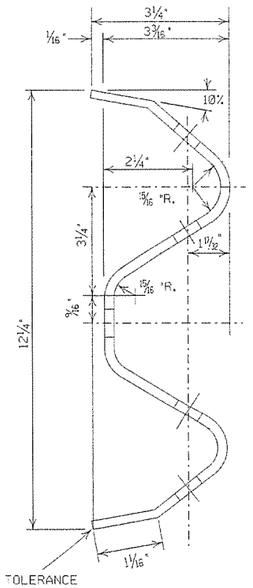
NOTE: POST BOLT SAME EXCEPT LENGTH.



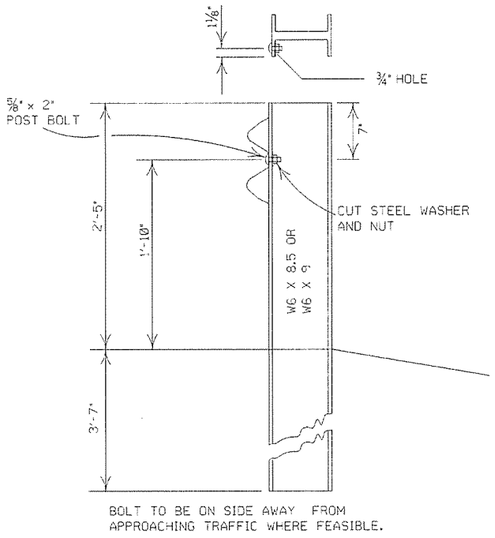
NUT



CUT STEEL WASHER

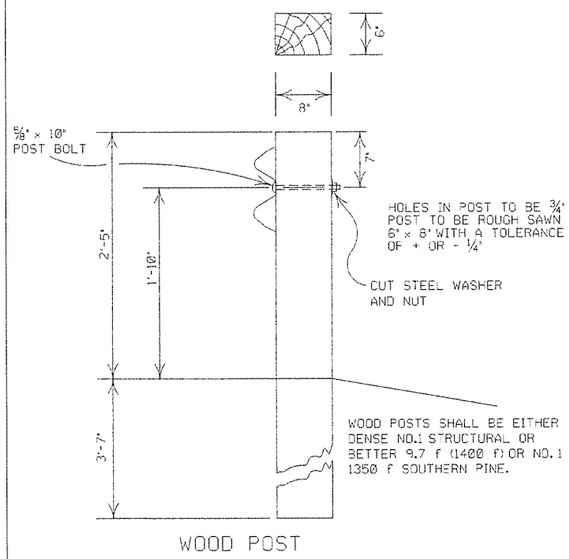


SECTION THRU RAIL



BOLT TO BE ON SIDE AWAY FROM APPROACHING TRAFFIC WHERE FEASIBLE.

STEEL POST



WOOD POST

DETAILS OF POST CONNECTIONS

DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF GUARD RAIL 1'	
8-22-22	REVISED DIMENSION ON STEEL POST	
11-16-01	REVISED STEEL AND WOOD POST	
8-12-98	REMOVED CONCRETE POST	
10-18-96	CHANGED WOOD POST NOTE	10-18-96
6-2-94	ADDED ALTERNATE STEEL POST SIZE	
8- 5-93	REVISED STEEL POSTS SIZE	8-5-93
8-15-91	DELETE STEEL PLATE WASHER & ADDED	8-15-91
	TYPE C TO TITLE	
12-30-87	REMOVED DET. PLCMNT. ON HWY.	555-11-20-87
1-4-83	GRADE FOR WOOD POSTS	679-1-4-83
10-1-77	HARDENED WASHER	922-10-1-72
10-2-72	REVISED & REDRAWN	521-10-2-72

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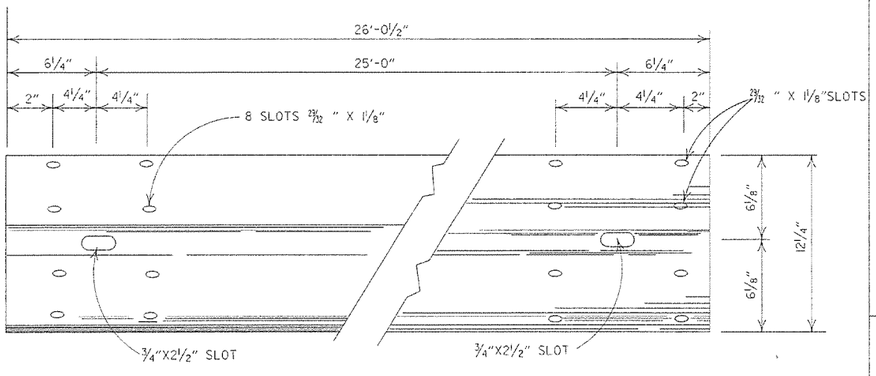
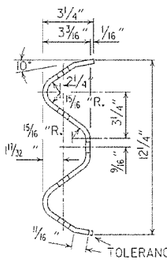
GUARD RAIL DETAILS (TYPE C)

STREET / ROAD BARRICADE OR TEMPORARY INSTALLATION

STANDARD DRAWING GR-7

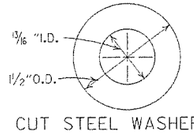




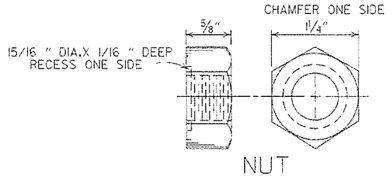
DETAILS OF W-BEAM GUARD RAIL

RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.

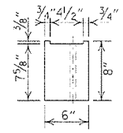
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



CUT STEEL WASHER

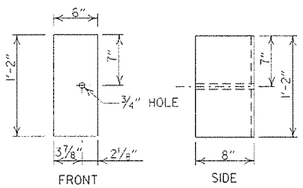


NUT

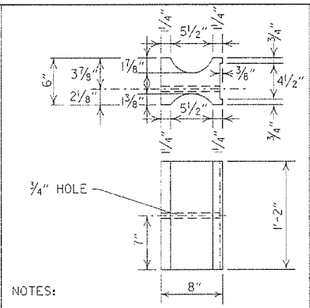


WOOD BLOCKOUT USED WITH WOOD POSTS SHALL BE 6"x8"x1'-2" WITH NO NOTCH REQUIRED.

TOP



WOOD BLOCKOUT (W-BEAM)

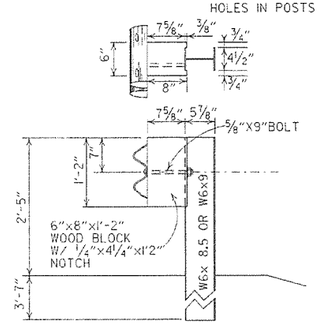


NOTES:

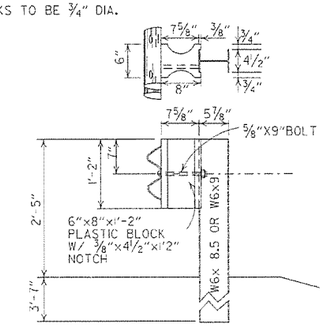
1. SIMILAR SHAPED PLASTIC BLOCKOUTS MAY BE USED AS LONG AS THEY MEET NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
2. DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCES.

PLASTIC BLOCKOUT (W-BEAM)

HOLES IN POSTS AND BLOCKS TO BE 3/4" DIA.

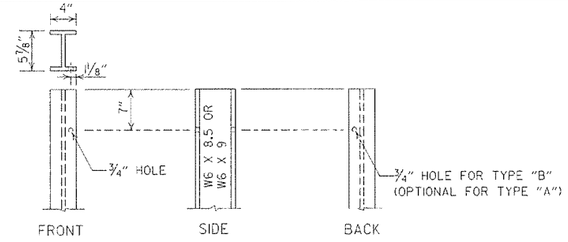


WOOD BLOCKOUT CONNECTIONS

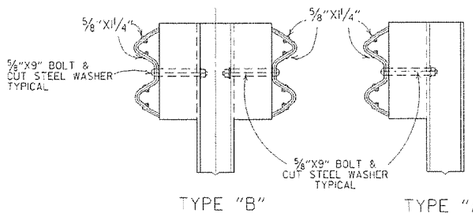


PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)



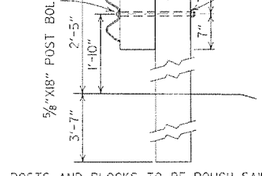
STEEL POST



TYPE "B" TYPE "A"

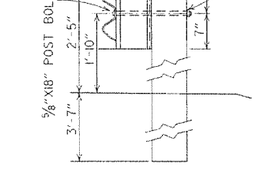
DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)

HOLES IN POSTS AND BLOCKS TO BE 3/4" DIA.



POSTS AND BLOCKS TO BE ROUGH SAWN 6"X8" WITH A TOLERANCE OF + OR - 1/4".

WOOD BLOCKOUT CONNECTIONS



PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF WOOD LINE POST CONNECTIONS (W-BEAM)

-GENERAL NOTES-

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN 3/4" BEYOND IT.

WHERE W-BEAM GUARD RAIL CONTINUES, THE INTERMEDIATE SECTIONS SHALL HAVE A POST SPACING OF 6'-3" UNLESS OTHERWISE NOTED.

W-BEAM GUARD RAIL REPRESENTING INTERMEDIATE SECTIONS WILL BE MEASURED ALONG THE ROADWAY FACE FROM CENTERLINE OF POST TO CENTERLINE OF POST.

USE W-BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB. FOR EXTENSIONS OR MODIFICATION OF EXISTING GUARD RAIL, W-BEAM GUARD RAIL COMPONENTS OF THE SAME TYPE AS THOSE EXISTING SHALL BE USED.

ANY BACKFILLING UNDER OR AROUND POST SHALL BE DAMP SAND THOROUGHLY TAMPED IN PLACE.

WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO.1 STRUCTURAL OR BETTER 9.7# (1400 f) OR NO.1 1350 f SOUTHERN PINE.

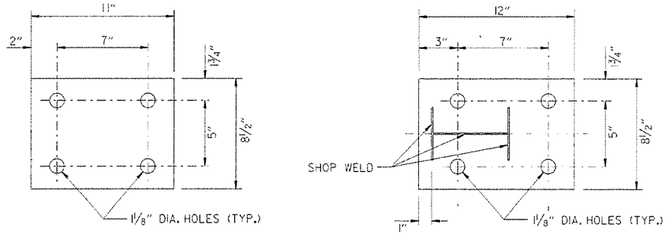
CONTRACTOR SHALL HAVE THE OPTION OF USING WOOD BLOCKOUTS FOR W-BEAM GUARD RAIL OR PLASTIC BLOCKOUTS, AS LONG AS BLOCKOUT USED MEETS NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) FOR W-BEAM GUARD RAIL.

DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
10-15-09	ADDED REFERENCE TO MASH	
4-10-03	REVISED GENERAL NOTES	
8-22-02	REVISED DIMENSION ON WOOD & PLASTIC BLOCKOUT CONNECTIONS & ON STEEL POST	
11-16-01	REVISED WOOD BLOCKOUT & DETAILS OF WOOD LINE POST CONNECTIONS	
3-30-00	REMOVED GUARD RAIL AT BRIDGE ENDS	
1-12-00	ADDED PLASTIC BLOCKOUT	
8-12-98	REV. BLOCKOUTS TO WOOD, DELETED CONC. POST & REV. GENERAL NOTE, DELETED DET. OF GUARD RAIL REPLACE. BEHIND CURB & DET. OF POST PLACE. IN SOLID ROCK, & ADDED DETAILS OF STEEL LINE POST CONN. REMOVED BACK-UP PLATE, REVISED HOLES IN STEEL POLES	
4-3-97	REMOVED "LAP IN DIRECTION OF TRAFFIC" NOTE & PLACED ARROWS ON WASHERS	
10-18-96	REVISED WOOD POST NOTE	
6-2-94	ADDED W T. STEEL POST SIZE	
8-5-93	REVISED STEEL POST SIZE	8-5-93
10-1-92	REDRAWN & REVISED	10-1-92
8-15-91	REVISED WASHER NOTE	8-5-91
8-2-90	REV. GEN. NOTE & DEPHT OF ANC. POST IN ROCK	8-2-90
7-15-88	REVISED SECTION 3 & GENERAL NOTES	
3-4-88	REV. ANCHOR POST, ELEV. NOTES & POST IN ROCK	780-3-4-88
10-30-87	REVISED WOOD LINE POST DETAIL	546-10-30-87
10-9-87	REDRAWN & REVISED	802-10-9-87

ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

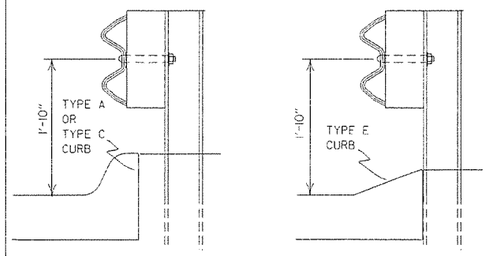
STANDARD DRAWING GR-8



WASHER PLATE

BASE PLATE

Note: Bolts, nuts, washers and plates shall be galvanized in accordance with Section 807 of the Standard Specifications.



FOR DESIGN SPEEDS OF 50 MPH OR LESS

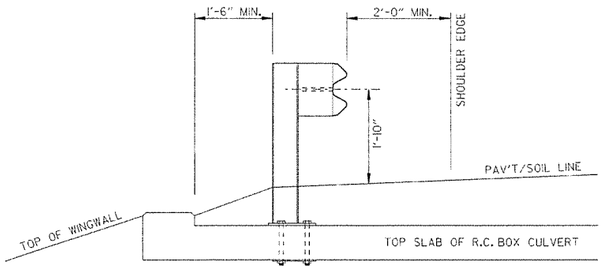
ALIGN FACE OF GUARD RAIL WITH FACE OF CURB.

FOR DESIGN SPEEDS OF 55 MPH OR MORE

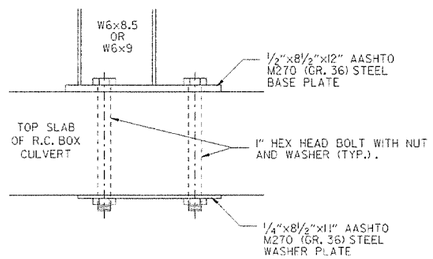
PLACE GUARD RAIL POSTS AGAINST BACK OF CURB.

DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB (W-BEAM)

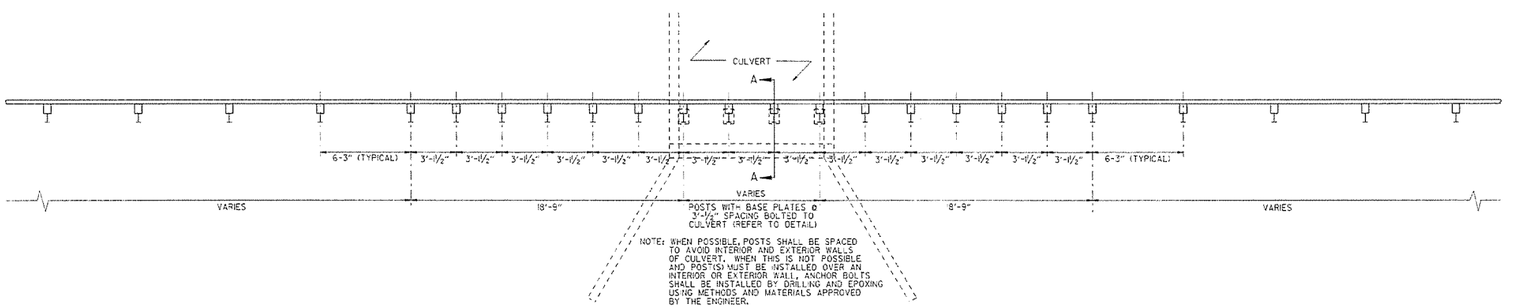
FOR DESIGN SPEEDS OF 50 MPH OR LESS ALL CURB FACES, AS SHOWN ON STD. DRWG. CG-1, MAY BE USED. FOR DESIGN SPEEDS OF 55 MPH OR MORE TYPE "E" CURB FACE SHALL BE USED.



SECTION A-A



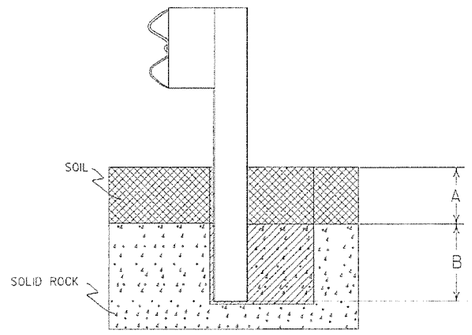
DETAIL OF CONNECTION



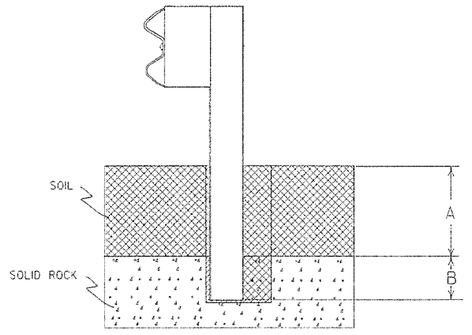
PLAN LAYOUT OF TYPE A GUARD RAIL AT LOW-FILL CULVERTS

NOTE: THIS DETAIL IS TO BE USED ONLY WHEN THE COVER OVER THE CULVERT DOES NOT PERMIT FULL EMBEDMENT OF GUARD RAIL POSTS AS SHOWN ON STD. DWG. GR-8.

Case 1

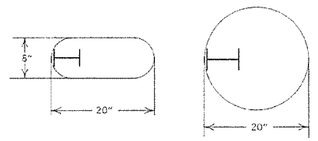


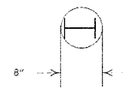
Case 2



Plan View Steel Posts

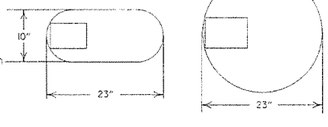
Either hole configuration acceptable

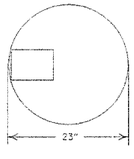


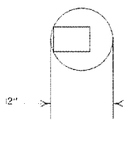


Plan View Wood Posts

Either hole configuration acceptable







Notes: For overlying soil depths (A) ranging from 0 to 18", the depth of required drilling (B) is equal to 24".

Zone A:
Backfill according to Section 617.03(a).

Zone B:
Backfill hole in 6" lifts with material meeting the requirements of Section 802.02(c) - Alternate gradation. Compact to 95% maximum dry density per ASTM D-698.

Notes: For overlying soil depths (A) ranging from 18" to 44", the depth of required drilling (B) is equal to either 12" or 44" minus the depth of soil whichever is less.

Zone A & B:
Backfill according to Section 617.03(a).

DETAIL OF POST PLACEMENT IN SOLID ROCK (W-BEAM)

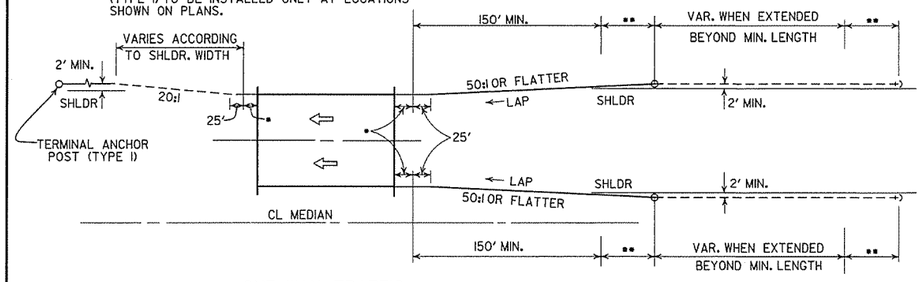
DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
4-12-07	REVISED DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB	
11-10-05	ADDED GUARD RAIL PLACEMENT BEHIND CURB; REVISED DETAIL OF CONNECTION	
11-18-04	REVISED POST PLACEMENT IN ROCK & CULVERT CONNECTION DETAILS. ADDED DETAIL FOR GUARD RAIL PLACEMENT AT LOW-FILL CULVERTS	
3-30-00	REMOVED CONCRETE INSERT ANCHOR	
8-12-98	CHANGED STEEL SPACER BLOCK TO WOOD BLOCKOUT, ADD. DET. OF GUARD RAIL CONNECTION TO R.C. BOX CULVT., DELETED DET. OF STEEL LINE POST CONN.& ADDED DET. OF GUARD RAIL PLACE. BEHIND CURB & DET. OF POST PLACE. IN SOLID ROCK	
4-3-96	PLACED ARROWS AT CUT STEEL WASHERS	4-3-96
10-18-96	REV. ASTM REF. TO AASHTO	
11-22-95	ADDED OPTIONAL HOLES	
6-2-94	REVISED ALTERNATE POST SIZE	
8-5-93	REVISED STEEL POST SIZE	
10-1-92	REDRAWN & REVISED	10-1-92
8-2-90	DEL. WASHER ON ANCHOR ASSEMBLY	8-2-90
7-15-88	CONFORMED TO 1988 SPECS	
3-4-88	REVISED ANCHOR NOTE	
10-30-87	REVISED ANCHOR ASSEMBLY	712-10-30-87
10-30-87	REVISED PLACEMENT BEHIND CURB	547-10-30-87
10-9-87	REDRAWN & REVISED	803-10-9-87

ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

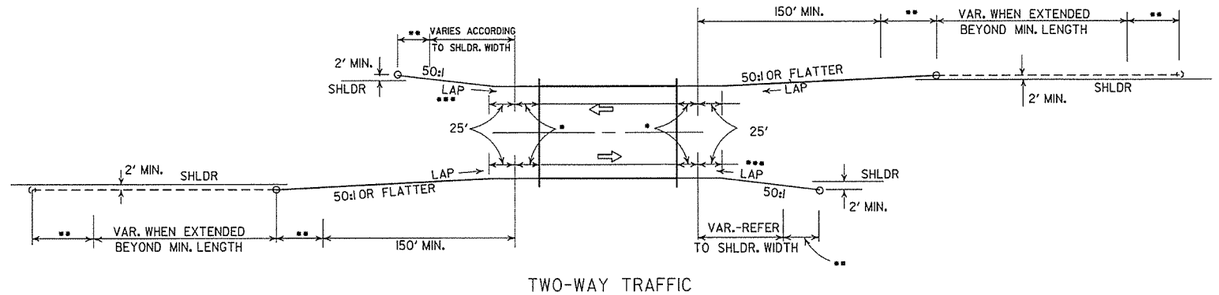
STANDARD DRAWING GR-8A

NOTE: GUARD RAIL WITH GUARD RAIL TERMINAL (TYPE I) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

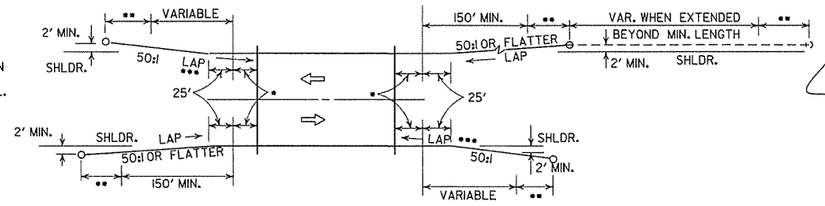
••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

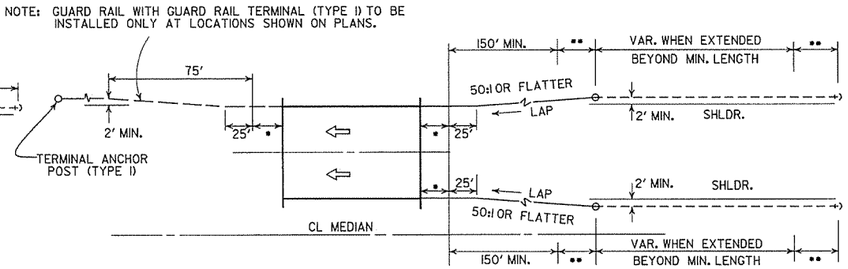
METHODS OF INSTALLATION OF GUARD RAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

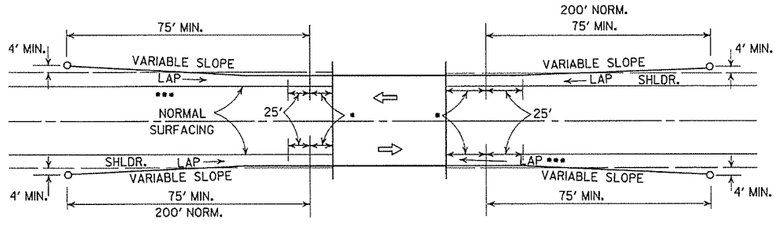
NOTE: GUARD RAIL WITH GUARD RAIL TERMINAL (TYPE I) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

METHOD OF INSTALLATION OF GUARD RAIL AT FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERMINAL (TYPE I) (FULL SHOULDER WIDTH OR LESS BRIDGES)

LEGEND

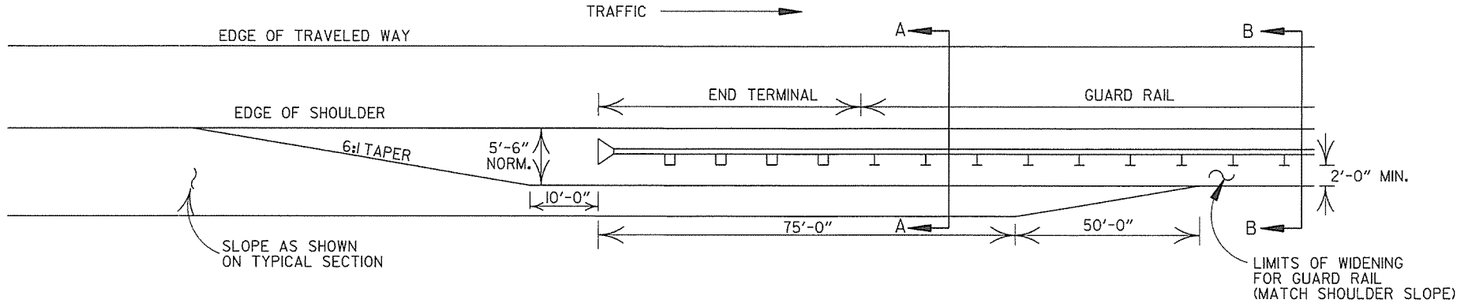
- ▪ THRIE BEAM GUARD RAIL TERMINAL
- ▪▪ GUARD RAIL TERMINAL (TYPE 2)

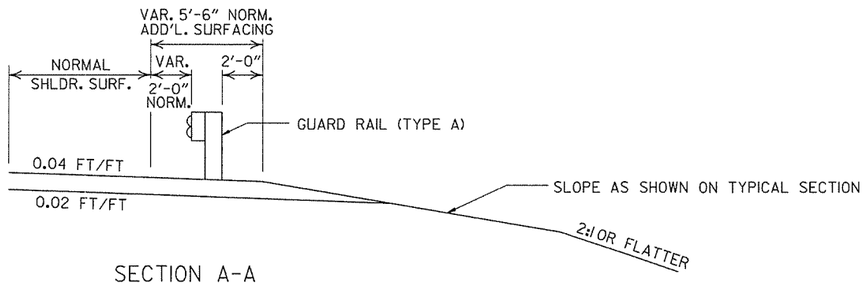
DATE	REVISION	DATE FILM
4-17-08	REVISED LAYOUTS	
11-10-05	REMOVED GUARD RAIL NOTES AND DETAILS	
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERM. (TY. I)	
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00
6-26-97	REVISED LAYOUT	
10-1-92	REDRAWN & REVISED	10-1-92
	ADDED NOTE	
10-9-87	REDRAWN & REVISED	

ARKANSAS STATE HIGHWAY COMMISSION

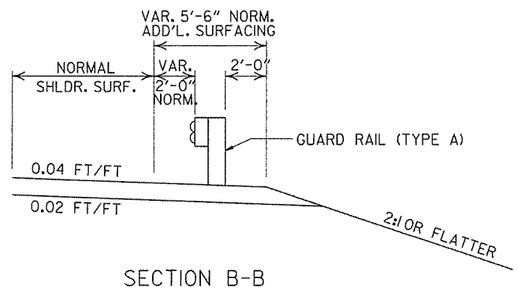
GUARD RAIL DETAILS

STANDARD DRAWING GR-9





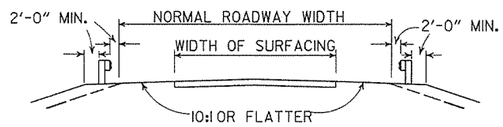
SECTION A-A



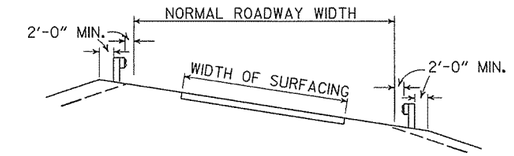
SECTION B-B

DETAILS OF WIDENING FOR GUARD RAIL

NOTE: NORMAL SECTION TO BE WIDENED APPROX. 5'-6" EACH SIDE TO SUPPORT GUARD RAIL.

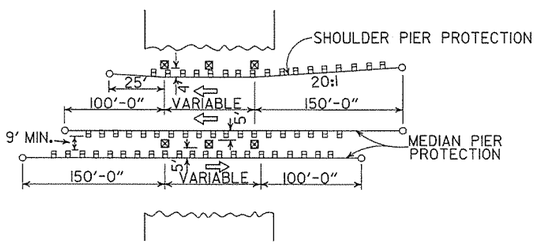


SECTION ON TANGENT



SECTION ON CURVE

DETAILS SHOWING POSITION OF GUARD RAIL ON HIGHWAY



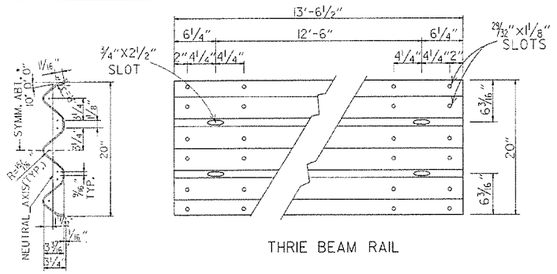
METHOD OF INSTALLATION OF GUARD RAIL AT FIXED OBSTACLE

DATE	REVISION	DATE FILM
4-17-08	MINOR REVISION	
11-10-05	DRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

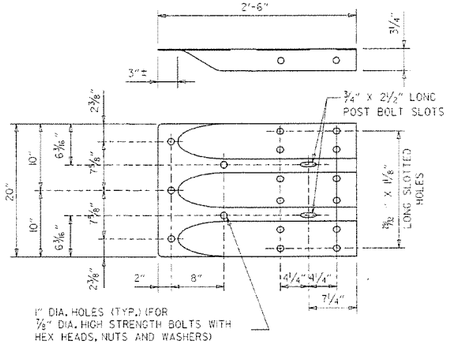
GUARD RAIL DETAILS

STANDARD DRAWING GR-9A



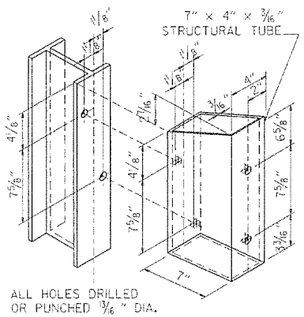
SECTION THRU
THRIE BEAM RAIL

THRIE BEAM RAIL



1" DIA. HOLES (TYP.) (FOR ⅞" DIA. HIGH STRENGTH BOLTS WITH HEX HEADS, NUTS AND WASHERS)

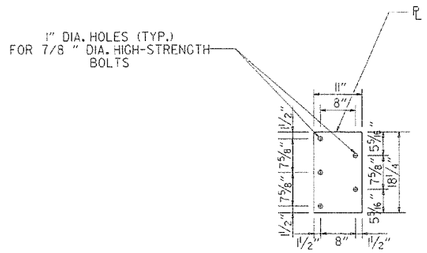
SPECIAL END SHOE



ALL HOLES DRILLED OR PUNCHED ⅜" DIA.

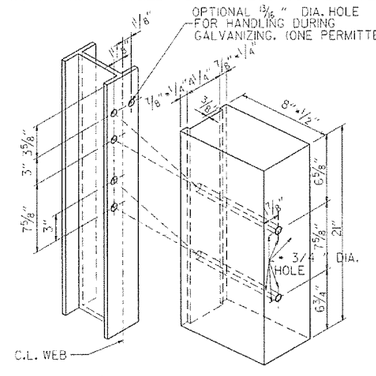
STRUCTURAL STEEL TUBING BLOCKOUT DETAIL

ATTACH BLOCKOUT TO POST USING ⅝" DIA. HEX HEAD BOLTS WITH 1½" O.D. CUT STEEL WASHERS AND NUT.



CONNECTOR PLATE

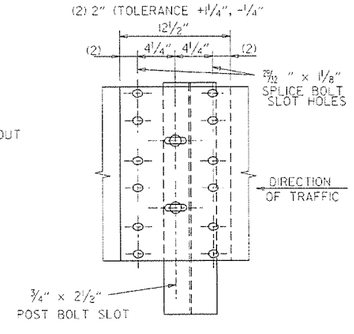
CONNECTOR PLATE SHALL BE AASHTO M270, GR. 36 AND SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL CONFORM TO SUBSECTION 807.19 OF THE STANDARD SPECIFICATIONS. CONNECTOR PLATE TO BE BOLTED TO SPECIAL END SHOE USING ⅞" DIA. HIGH STRENGTH BOLTS, WITH THE HEADS PLACED ON THE TRAFFIC FACE. WASHERS SHALL BE USED UNDER THE HEAD AND NUT. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AND SHALL CONFORM TO SUBSECTION 807.06.



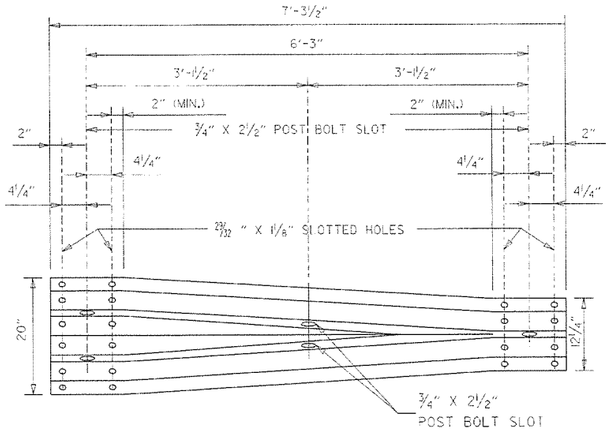
ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED

HOLE PUNCHING DETAIL
FOR STEEL POST & WOOD
OR PLASTIC BLOCKOUTS

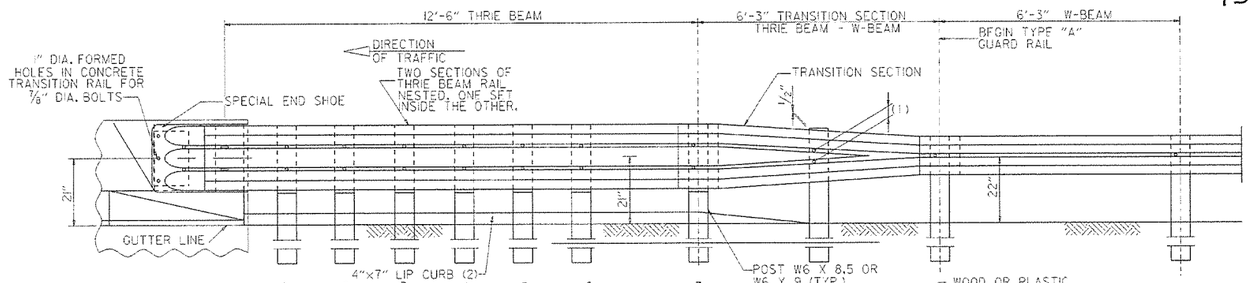
NOTE: BLOCKS SHALL BE THE SAME TYPE THROUGHOUT THE PROJECT LIMITS.



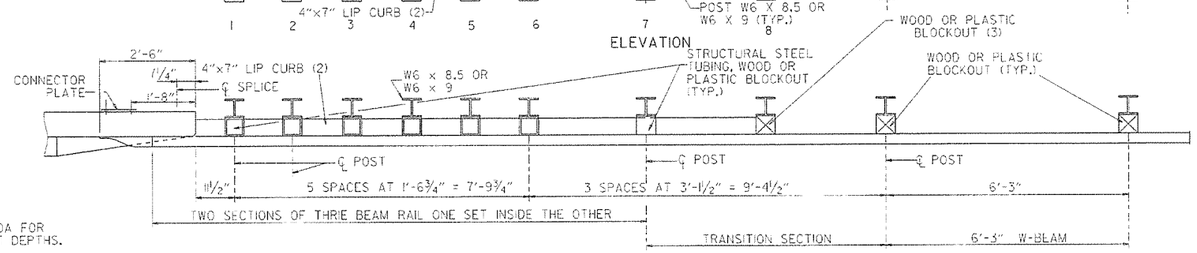
THRIE BEAM RAIL
SPLICE AT POST



TRANSITION SECTION

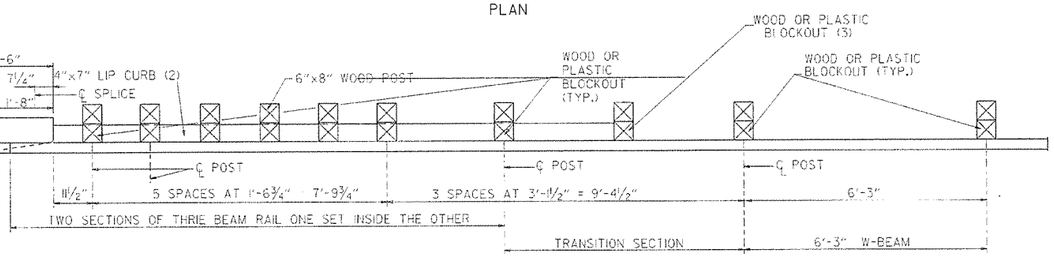


ELEVATION



PLAN

NOTE:
SEE STANDARD DRAWING GR-10A FOR GUARD RAIL POST EMBEDMENT DEPTHS.



PLAN

(1) VERIFY BOLT SPACING FROM RAIL TRANSITION PRODUCER.
(2) REFER TO APPROACH GUTTER DETAILS.
(3) LENGTH OF BLOCKOUT ON POST 8 TO BE MODIFIED TO FIT RAIL WIDTH.

THRIE BEAM GUARD RAIL CONNECTION AT BRIDGE ENDS

GENERAL NOTES:

THE THRIE BEAM RAIL, SPECIAL END SHOE, AND THE TRANSITION SECTION SHALL BE MADE OF STEEL AND SHALL BE 12 GAGE. ZINC COATING SHALL BE TYPE I.

RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN ¾" BEYOND IT.

ALL LAP SPLICES, INCLUDING SPECIAL END SHOES, SHALL BE MADE IN THE DIRECTION SHOWN ON STANDARD DRAWINGS GR-9 & GR-11.

WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7# (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

REFER TO STD. DRWG. GR-10A FOR POST DETAILS.

USE THRIE BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB.

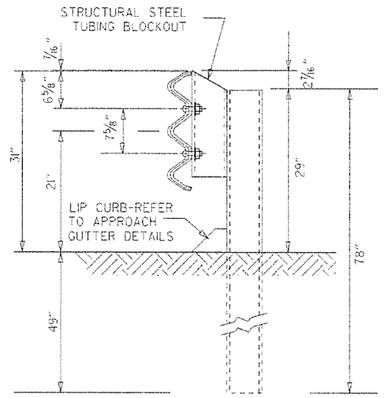
THRIE BEAM POSTS SHALL BE SAME MATERIAL AS W-BEAM POSTS FOR ENTIRE JOB.

DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF W-BEAM 1"	
11-29-07	ADDED PLASTIC BLOCKOUTS	
11-10-05	ADDED NOTE FOR ATTACHING STEEL BLOCKOUT	
11-18-04	REVISED GENERAL NOTES	
10-9-03	REVISED GENERAL NOTES	
4-10-03	REVISED GENERAL NOTES	
8-22-02	REVISED NOTE (2)	
6-29-00	MOVED DIMENSION LINES	
5-18-00	ADDED NOTE	
3-30-00	DRAWN & ISSUED	

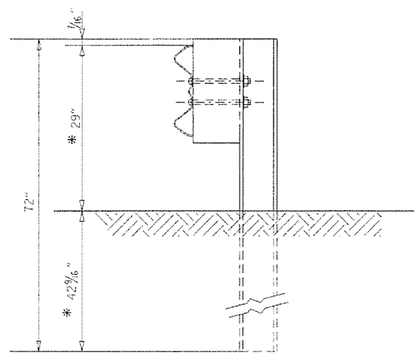
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10

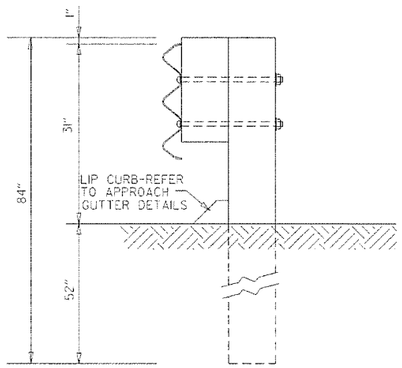


THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7

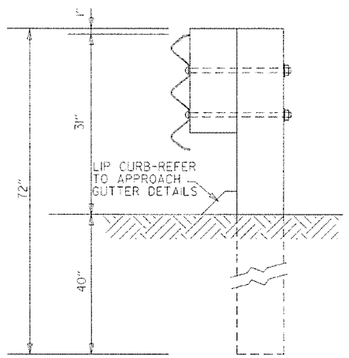


W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8

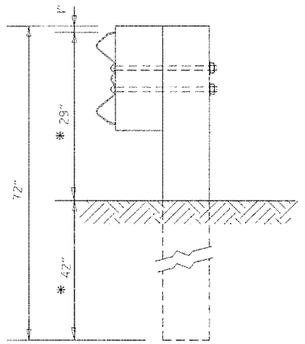
* NOTE:
THESE DIMENSIONS WILL NEED TO BE ADJUSTED IN THE FIELD TO MAKE THE TRANSITION FROM 21" MID POINT OF THRIE BEAM TO 22" MID POINT OF W-BEAM.



THRIE BEAM RAIL
WITH WOOD OR PLASTIC
BLOCKOUTS & WOOD POSTS
POSTS 1-6



THRIE BEAM RAIL
WITH WOOD OR PLASTIC
BLOCKOUT & WOOD POST
POST 7



W-BEAM TO THRIE BEAM
TRANSITION RAIL WITH WOOD OR
PLASTIC BLOCKOUT & WOOD POST
POST 8

GENERAL NOTES:

RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.

WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 (1350 f SOUTHERN PINE.

DATE	REVISION	DATE FILM
7-14-10	REVISED POST 8 DIMENSIONS	
11-29-07	ADDED PLASTIC BLOCKOUTS	
8-22-02	REVISED LIP CURB NOTE	
3-30-00	DRAWN & ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10A

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA.	SPAN		RISE	
	AASHTO M 206	AHTD NOMINAL	AASHTO M 206	AHTD NOMINAL
INCHES	INCHES			
15	18	18	11	11
18	22	22	13½	14
21	26	26	15½	16
24	28½	29	18	18
30	36¼	36	22½	23
36	43⅜	44	26⅝	27
42	51⅛	51	31 5/16	31
48	58½	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77½	77
108	138	138	87⅛	87
120	154	154	96⅞	97
132	168¾	169	106½	107

THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PERCENT FROM THE VALUES SPECIFIED BY AASHTO M206.

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

EQUIV. DIA.	AASHTO M 207	
	SPAN	RISE
INCHES	INCHES	
18	23	14
24	30	19
27	34	22
30	38	24
33	42	27
36	45	29
39	49	32
42	53	34
48	60	38
54	68	43
60	76	48
66	83	53
72	91	58
78	98	63
84	106	68

THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PERCENT FROM THE VALUES SPECIFIED BY AASHTO M207.

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. PLACE AND COMPACT THE HAUNCH AREA UP TO THE MIDDLE OF THE PIPE.
5. COMPLETE BACKFILL ACCORDING TO SUBSECTION 606.03.(f)(1).

NOTE: HAUNCH AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF CONCRETE PIPE.

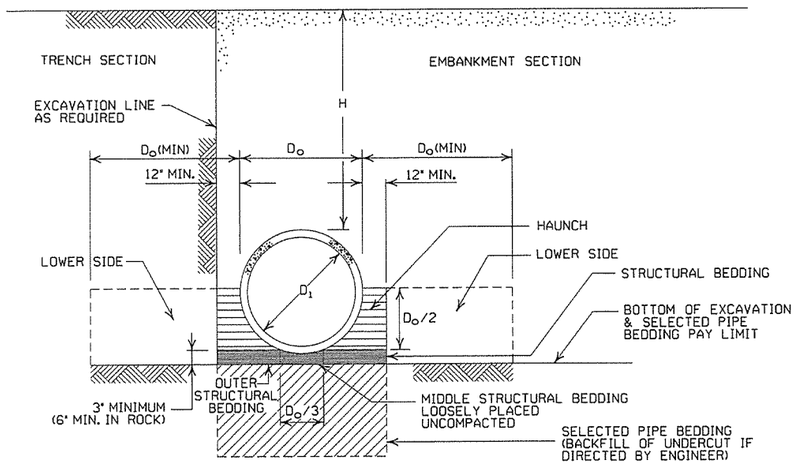
- LEGEND -

D_i = NORMAL INSIDE DIAMETER OF PIPE
D_o = OUTSIDE DIAMETER OF PIPE
H = FILL COVER HEIGHT OVER PIPE (FEET)
MIN. = MINIMUM
▨ = UNDISTURBED SOIL

INSTALLATION TYPE	MATERIAL REQUIREMENTS FOR HAUNCH AND STRUCTURAL BEDDING
TYPE 1	AGGREGATE BASE COURSE (CLASS 5 OR CLASS 7)
TYPE 2	SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4) OR TYPE 1 INSTALLATION MATERIAL*
TYPE 3**	AASHTO CLASSIFICATION A-1 THRU A-6 SOIL OR TYPE 1 OR 2 INSTALLATION MATERIAL

* SM-3 WILL NOT BE ALLOWED.

** MATERIALS SHALL NOT INCLUDE ORGANIC MATERIALS OR STONES LARGER THAN 3 INCHES.



EMBANKMENT AND TRENCH INSTALLATIONS

1. MATERIAL IN THE HAUNCH AND OUTER STRUCTURAL BEDDING SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. FOR TRENCHES WITH WALLS OF NATURAL SOIL, THE DENSITY OF THE SOIL IN THE LOWER SIDE ZONE SHALL BE AS FIRM AS THE 95% DENSITY REQUIRED FOR THE HAUNCH. IF THE EXISTING SOIL DOES NOT MEET THIS CRITERIA, IT SHALL BE REMOVED AND RECOMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OF MATERIAL USED.
3. FOR EMBANKMENTS, THE MATERIAL IN THE LOWER SIDE ZONE SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

MINIMUM HEIGHT OF FILL "H" OVER CIRCULAR R.C. PIPE CULVERTS

	CLASS OF PIPE			
	CLASS III		CLASS IV	CLASS V
INSTALLATION TYPE	TYPE 1 OR 2	TYPE 3	ALL	ALL
PIPE ID (IN.)	FEET			
12-15	2	2.5	2	1
18-24	2.5	3	2	1
27-33	3	4	2	1
36-42	3.5	5	2	1
48	4.5	5.5	2	1
54-60	5	7	2	1
66-78	6	8	2	1
84-108	7.5	8	2	1

NOTE: FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM OF 12" OF PAVEMENT AND/OR BASE.

MAXIMUM HEIGHT OF FILL "H" OVER CIRCULAR R.C. PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE		
	CLASS III	CLASS IV	CLASS V
	FEET		
TYPE 1	21	32	50
TYPE 2	16	25	39
TYPE 3	12	20	30

NOTE: IF FILL HEIGHT EXCEEDS 50 FEET, A SPECIAL DESIGN CONCRETE PIPE WILL BE REQUIRED USING TYPE 1 INSTALLATION.

MINIMUM HEIGHT OF FILL "H" OVER R.C. ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE	
	CLASS III	CLASS IV
	FEET	
TYPE 2 OR TYPE 3	2.5	1.5

NOTE: TYPE 1 INSTALLATION WILL NOT BE ALLOWED FOR ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS.

NOTE: FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM OF 12" OF PAVEMENT AND/OR BASE.

MAXIMUM HEIGHT OF FILL "H" OVER R.C. ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE	
	CLASS III	CLASS IV
	FEET	
TYPE 2	13	21
TYPE 3	10	16

NOTE: TYPE 1 INSTALLATION WILL NOT BE ALLOWED FOR ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS.

GENERAL NOTES

1. CONCRETE PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. CONCRETE PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. ALL PIPE SHALL CONFORM TO SECTION 606. CIRCULAR R.C. PIPE CULVERTS SHALL CONFORM TO AASHTO M170. R.C. ARCH PIPE CULVERTS SHALL CONFORM TO AASHTO M206 AND HORIZONTAL ELLIPTICAL PIPE CULVERTS SHALL CONFORM TO AASHTO M207.
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. NOT MORE THAN ONE LIFTING HOLE MAY BE PROVIDED IN CONCRETE PIPE TO FACILITATE HANDLING. HOLE MAY BE CAST IN PLACE, CUT INTO THE FRESH CONCRETE AFTER FORMS ARE REMOVED, OR DRILLED. THE HOLE SHALL NOT BE MORE THAN TWO INCHES IN DIAMETER OR TWO INCHES SQUARE. CUTTING OR DISPLACEMENT OF REINFORCEMENT WILL NOT BE PERMITTED. SPALLED AREAS AROUND THE HOLE SHALL BE REPAIRED IN A WORKMANLIKE MANNER. LIFTING HOLE SHALL BE FILLED WITH MORTAR, CONCRETE, OR OTHER METHOD AS APPROVED BY THE ENGINEER.
9. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
10. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS THE HAUNCH), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED FOR LRFD DESIGN SPECIFICATIONS	
5-18-00	REVISED TYPE 3 BEDDING & ADDED NOTE	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINUMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS (INCHES)				
		0.064	0.079	0.109	0.138	0.168
2⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM						
12	1	84	91			
15	1	67	73			
18	1	56	61			
24	1	42	46	59		
30	2	34	36	47		
36	2		30	39	41	
42	2		43	67	70	73
48	2		37	58	61	64
② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, BOLTED, OR HELICAL LOCK-SEAM						
36	1	48	60	88	111	118
42	1	41	51	72	90	102
48	1	36	45	64	77	85
54	2	32	40	59	71	79
60	2	29	36	53	64	71
66	2	26	33	47	58	64
72	2	24	30	44	53	59
78	2		28	41	49	54
84	2		26	38	45	51
90	2		24	35	43	45
96	2		22	33	40	44
102	2			31	38	42
108	2			30	35	39
114	2			28	34	37
120	2			27	32	35

CORRUGATED ALUMINUM PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINUMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS IN INCHES				
		0.060	0.075	0.105	0.135	0.164
		2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM				
12	1	45	45			
18	2	30	30	52		
24	2	22	22	39	41	
30	2		18	31	32	34
36	2.5		15	26	27	28
42	2			43	43	44
48	2			40	41	43
54	2			35	37	38
60	2				33	34
66	2					31
72	2					29

CORRUGATED METAL PIPE ARCHES

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	STEEL				ALUMINUM			
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)		MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)	
				INSTALLATION	INSTALLATION			INSTALLATION	INSTALLATION	
				TYPE 1	TYPE 1			TYPE 1	TYPE 1	
			2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM				2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM			
15	17x13	3	0.064	2	15		0.060	2	15	
18	21x15	3	0.064	2	15		0.060	2	15	
21	24x18	3	0.064	2.25	15		0.060	2.25	15	
24	28x20	3	0.064	2.5	15		0.075	2.5	15	
30	35x24	3	0.079	3	12		0.075	3	12	
36	42x29	3½	0.079	3	12		0.105	3	12	
42	49x33	4	0.079	3	12		0.105	3	12	
48	57x38	5	0.109	3	13		0.135	3	13	
54	64x43	6	0.109	3	14		0.135	3	14	
60	71x47	7	0.138	3	15		0.164	3	15	
66	77x52	8	0.168	3	15					
72	83x57	9	0.168	3	15					
			② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM							
				INSTALLATION		INSTALLATION				
				TYPE 2	TYPE 1	TYPE 2	TYPE 1			
36	40x31	5	0.079	3	2	12	15			
42	46x36	6	0.079	3	2	13	15			
48	53x41	7	0.079	3	2	13	15			
54	60x46	8	0.079	3	2	13	15			
60	66x51	9	0.079	3	2	13	15			
66	73x55	12	0.079	3	2	15	15			
72	81x59	14	0.079	3	2	15	15			
78	87x63	14	0.079	3	2	15	15			
84	95x67	16	0.109	3	2	15	15			
90	103x71	16	0.109	3	2	15	15			
96	112x75	18	0.109	3	2	15	15			
102	117x79	18	0.109	3	2	15	15			
108	128x83	18	0.138	3	2	15	15			

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. COMPLETE STRUCTURAL BACKFILL OPERATION BY WORKING FROM SIDE TO SIDE OF THE PIPE. THE SIDE TO SIDE STRUCTURAL BACKFILL DIFFERENTIAL SHALL NOT EXCEED 24 INCHES OR 1/3 THE SIZE OF THE PIPE, WHICHEVER IS LESS.

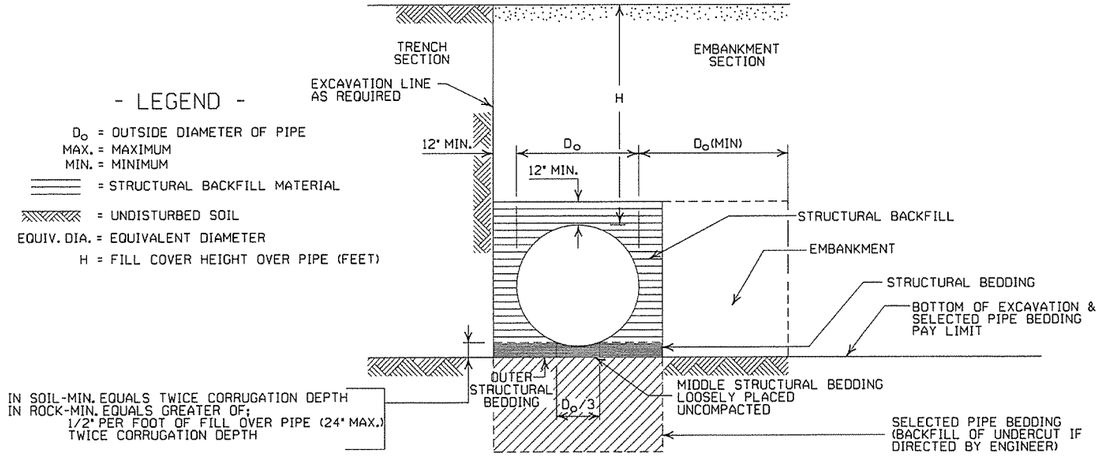
NOTE: STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF METAL PIPE.

INSTALLATION TYPE	MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 1	AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7)
TYPE 2	SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4) OR TYPE 1 INSTALLATION MATERIAL ③

③ SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

METAL THICKNESS IN INCHES			GAUGE NUMBER
STEEL			
ZINC COATED	UNCOATED	ALUMINUM	
0.064	0.0598	0.060	16
0.079	0.0747	0.075	14
0.109	0.1046	0.105	12
0.138	0.1345	0.135	10
0.168	0.1644	0.164	8



EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE (ROUND).
3. INSTALALTION TYPE 1 SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 2⅔" X ½" CORRUGATION.
4. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 3" X 1" OR 5" X 1" CORRUGATION.

GENERAL NOTES

1. METAL PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. METAL PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. METAL PIPE CULVERT MATERIALS AND INSTALLATIONS SHALL CONFORM TO SECTION 606 AND JOB SPECIAL PROVISION "METAL PIPE".
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
9. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

① FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

② WHERE THE STANDARD 2 2/3"x ½" CORRUGATION AND GAUGE IS SPECIFIED FOR A GIVEN DIAMETER, A PIPE OF THE SAME DIAMETER WITH A 3" x 1" OR 5" x 1" CORRUGATION MAY BE SUBSTITUTED, PROVIDING IT IS GAUGED FOR A FILL HEIGHT CONDITION EQUAL TO OR GREATER THAN THE MAXIMUM FILL HEIGHT CONDITION FOR THE SPECIFIED GAUGE AND CORRUGATION.

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED FOR LRFD DESIGN SPECS	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

INSTALLATION TYPE	•• MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 2	•SELECTED MATERIALS (CLASS SM-1, SM-2 OR SM-4)

- AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.

  SM3 WILL NOT BE ALLOWED.

•• STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

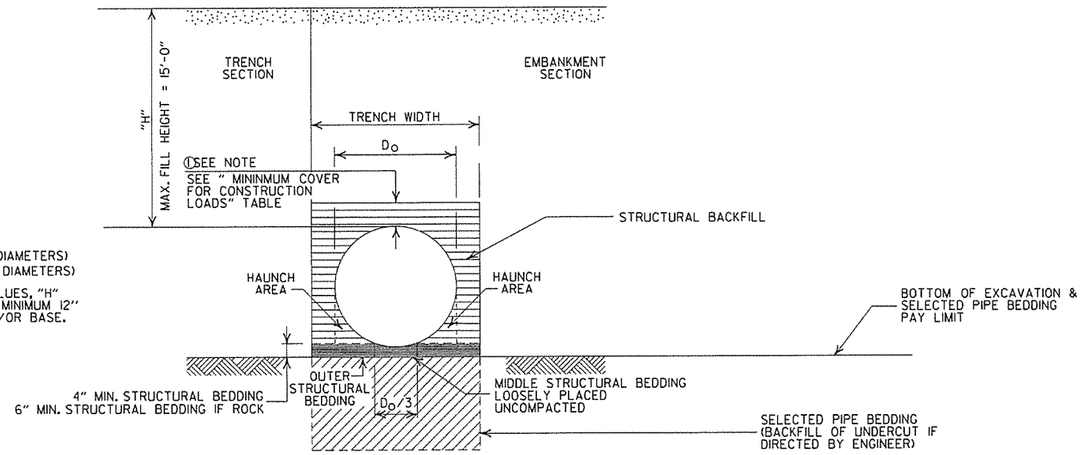
STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF HDPE PIPE.

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

PIPE DIAMETER	TRENCH WIDTH (FEET) "H" < 10'-0"	TRENCH WIDTH (FEET) "H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"
42"	7'-0"	10'-6"
48"	8'-0"	12'-0"

①NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)

MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

PIPE DIAMETER	CLEAR DISTANCE BETWEEN PIPES
18"	1'-6"
24"	2'-0"
30"	2'-6"
36"	3'-0"
42"	3'-6"
48"	4'-0"

MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	② MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS 18.0-50.0 (KIPS)	50.0-75.0 (KIPS)	75.0-110.0 (KIPS)	110.0-175.0 (KIPS)
36" OR LESS	2'-0"	2'-6"	3'-0"	3'-0"
42" OR GREATER	3'-0"	3'-0"	3'-6"	4'-0"

②MINIMUM COVER SHALL BE MEASURED FROM TOP OF PIPE TO TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE. THE SURFACE SHALL BE MAINTAINED.

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE LAYERS SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.
5. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

GENERAL NOTES

1. PIPE SHALL CONFORM TO AASHTO M294, TYPE S. INSTALLATION SHALL CONFROM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICIATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. HIGH DENSITY POLYETHYLENE PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR HDPE PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

- LEGEND -

H = FILL HEIGHT (FT.)
Ø = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED GENERAL NOTES & MINIMUM COVER NOTE	
11-17-10	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1

INSTALLATION TYPE	•• MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 2	•SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4)

• AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.

SM3 WILL NOT BE ALLOWED.

•• STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF PVC PIPE.

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"

MULTIPLE INSTALLATION OF PVC PIPES

PIPE DIAMETER	CLEAR DISTANCE BETWEEN PIPES
18"	1'-6"
24"	2'-0"
30"	2'-6"
36"	3'-0"

MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

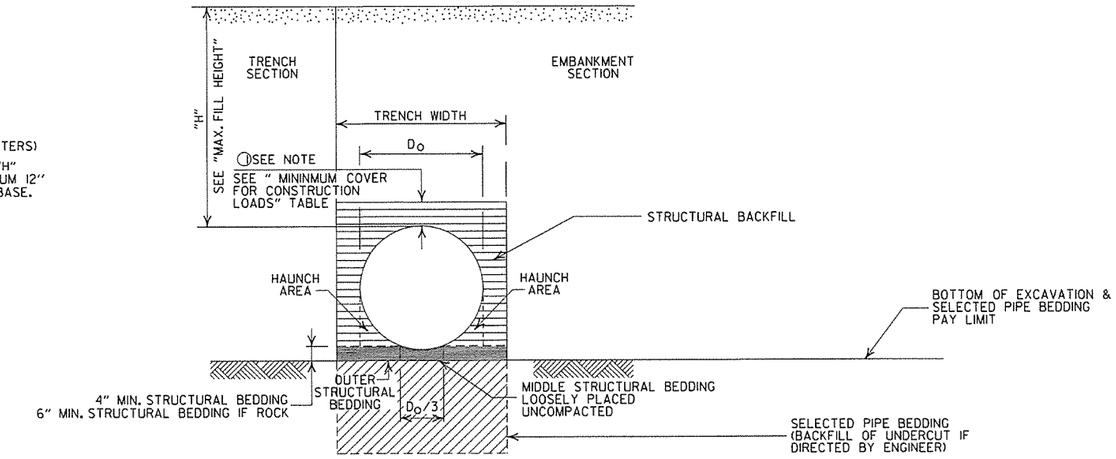
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

① NOTE:
12" MIN. (18" - 36" DIAMETERS)
MINIMUM COVER VALUE, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	② MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS			
	18.0-50.0 (KIPS)	50.0-75.0 (KIPS)	75.0-110.0 (KIPS)	110.0-175.0 (KIPS)
18" THRU 36"	2'-0"	2'-6"	3'-0"	3'-0"

②MINIMUM COVER SHALL BE MEASURED FROM TOP OF PIPE TO TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE. THE SURFACE SHALL BE MAINTAINED.



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE LAYERS SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.
5. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

GENERAL NOTES

1. PIPE SHALL CONFORM TO ASTM F949, CELL CLASS 12454. INSTALLATION SHALL CONFROM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICIATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. PVC PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR PVC PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

- LEGEND -

H = FILL HEIGHT (FT.)
D_O = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REV GENERAL NOTES & MINIMUM COVER NOTE; DELETED SM3 MATERIAL	
11-17-10	ISSUED	

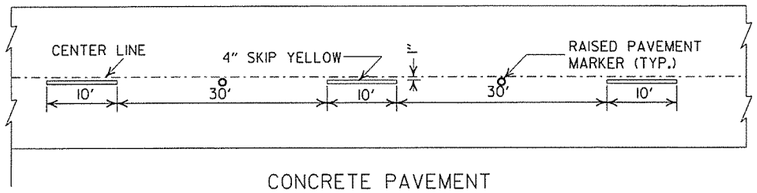
ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (PVC F949)

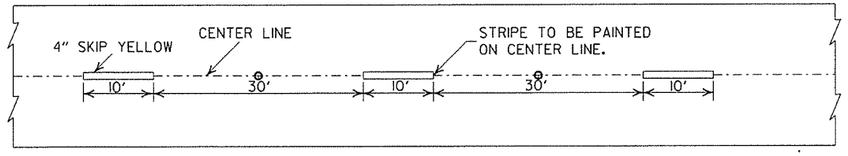
STANDARD DRAWING PCP-2

NOTES:

1. ALL LINES SHALL HAVE A WIDTH OF 4 INCHES.
2. THE THICKNESS AND RATE OF PAINT APPLICATION SHALL BE AS SPECIFIED IN SECTION 718 OF THE STANDARD SPECIFICATIONS.
3. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
4. RAISED PAVEMENT MARKERS SHALL BE CENTERED BETWEEN SKIP LINES ON 40 FEET SPACING UNLESS OTHERWISE SHOWN ON THE PLANS.

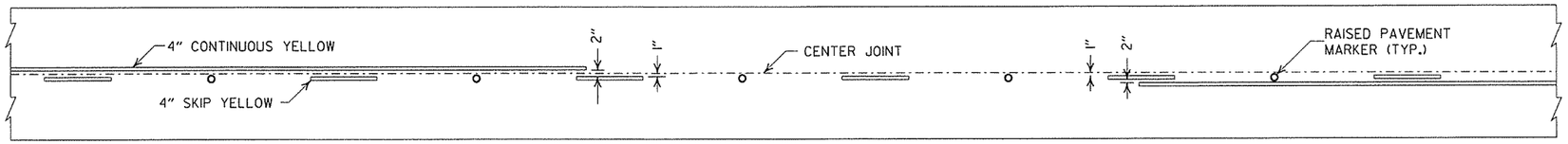


CONCRETE PAVEMENT

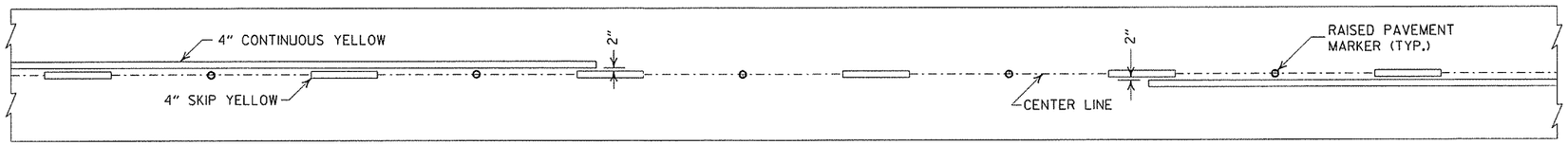


ASPHALT PAVEMENT

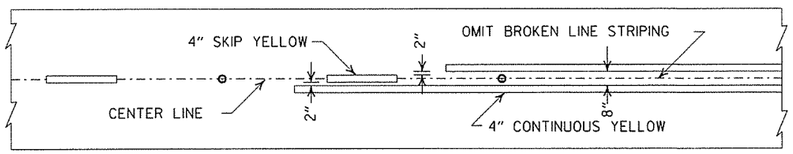
BROKEN LINE STRIPING



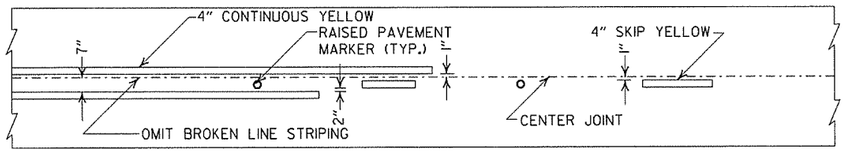
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

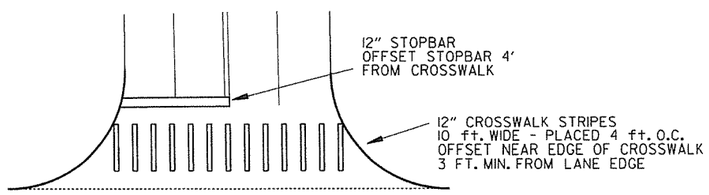


ASPHALT PAVEMENT

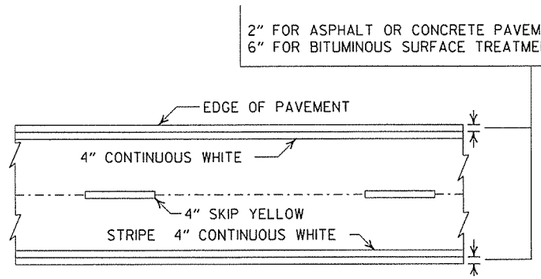


CONCRETE PAVEMENT

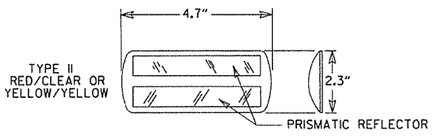
STRIPING AT ADJACENT NO PASSING LANES



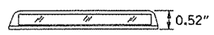
CROSSWALK AND STOPBAR DETAILS



PAVEMENT EDGE LINE MARKING



NOTE:
THE RED LENS OF THE TYPE II R.P.M. SHALL FACE THE INCORRECT TRAFFIC MOVEMENT.



DETAIL OF STANDARD RAISED PAVEMENT MARKERS

GENERAL NOTES:

THIS DRAWING SHOULD BE CONSIDERED AS TYPICAL ONLY AND THE FINAL LOCATION OF THE STRIPING AND RAISED PAVEMENT MARKERS SHALL BE DETERMINED BY THE ENGINEER.

THIS DRAWING SHOULD BE USED IN CONJUNCTION WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST REVISION.

NOTE:
DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE AHTD QUALIFIED PRODUCTS LIST.

DATE	REVISION	FILMED
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PVMT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTLS.	
7-02-98	ADDED DETAILS OF STD. RAISED PAV'T. MARKERS	
4-26-96	REV. NOTES 3&4; ADDED R.P.M.	
9-30-80	DRAWN	1-9-30-80

ARKANSAS STATE HIGHWAY COMMISSION

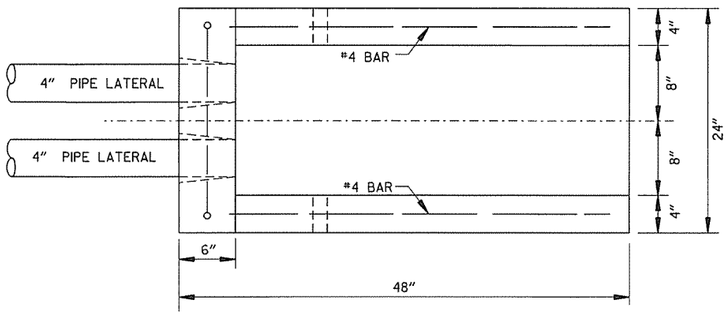
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

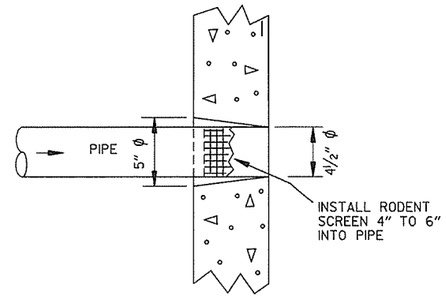
NOTE:
1. GRANULAR BACKFILL TO BE SUBSIDIARY TO PIPE UNDERDRAIN.

2. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

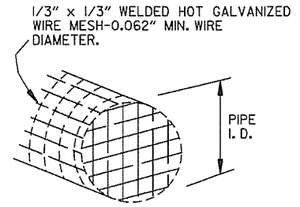
3. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.



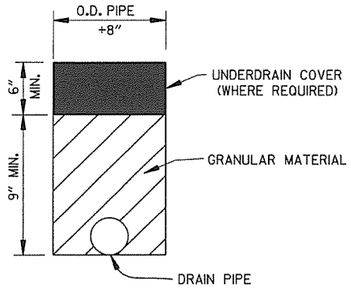
PLAN VIEW

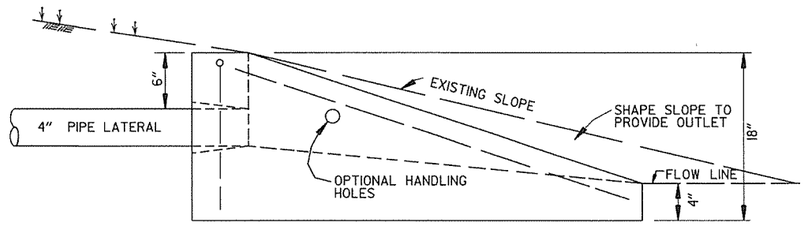


DETAIL OF HOLE FOR 4" PIPE

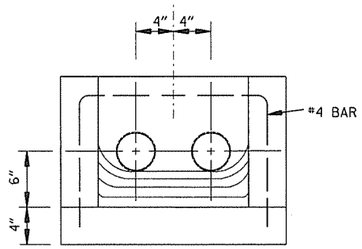


DETAIL OF RODENT SCREEN

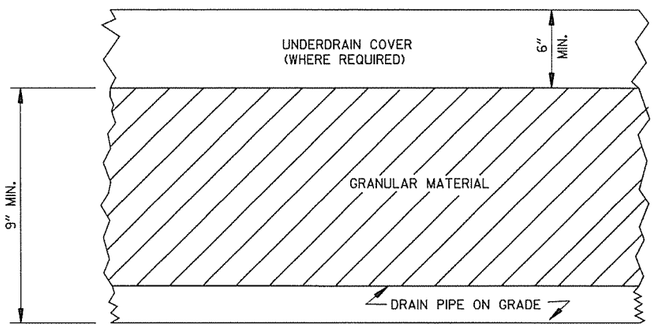




SIDE VIEW

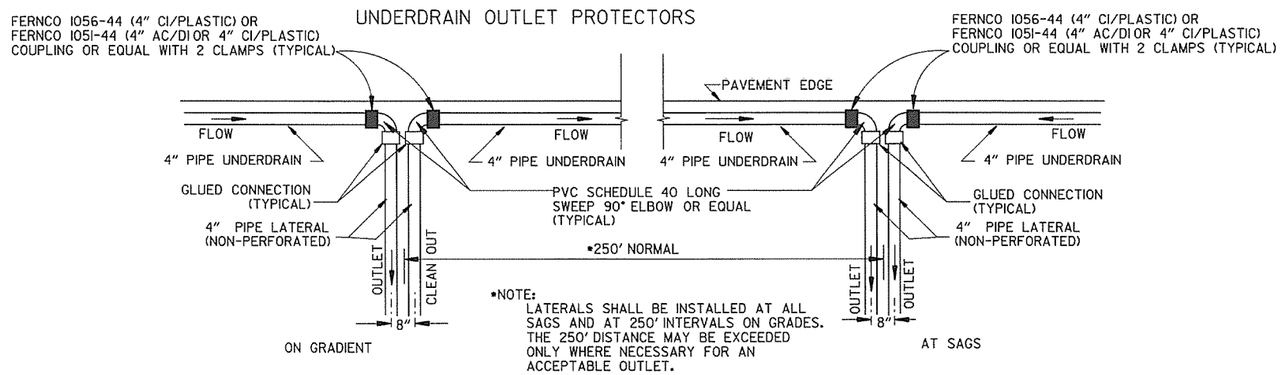


FRONT VIEW



DETAILS OF PIPE UNDERDRAIN

UNDERDRAIN OUTLET PROTECTORS



DETAIL OF PIPE UNDERDRAIN LATERALS WHEN PLACED ALONG PAVEMENT EDGE

NOTE: PVC PIPE FOR LATERALS SHALL MEET THE REQUIREMENTS OF ASTM D 1785 (LATEST REVISION) FOR SCHEDULE 40 PIPE.

DATE	REVISION	DATE FILMED
4-10-03	REVISED NOTE 3	
1-12-00	REVISED DETAIL OF UNDERDRAIN LATERALS	
11-18-98	REVISED NOTE	
10-18-96	REVISED MIN. DEPTH & GEOTEXTILE FABRIC	
4-26-96	ADDED LATERAL NOTE; 5½" TO 5"	
11-22-95	REVISED LATERALS	
7-20-95	REVISED LATERALS & ADDED NOTE	
11- 3-94	REVISED FOR DUAL LATERALS	11- 3-94
10- 1-92	SUBSTITUTED GEOTEXTILE	10- 1-92
8-15-91	ADDED POLYEDTHYLENE PIPE	8-15-91
11- 8-90	DELETED ALTERNATE NOTE	11- 8-90
1-25-90	ADDED 4" SNAP ADAPTER	1-25-90
11-30-89	DEL. (SUBGRADE); ADDED (WHERE REQUIRED)	11-30-89
7-15-88	ISSUED P.L.M.	647-7-15-88

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1

7-20-95 INSTD.PUI

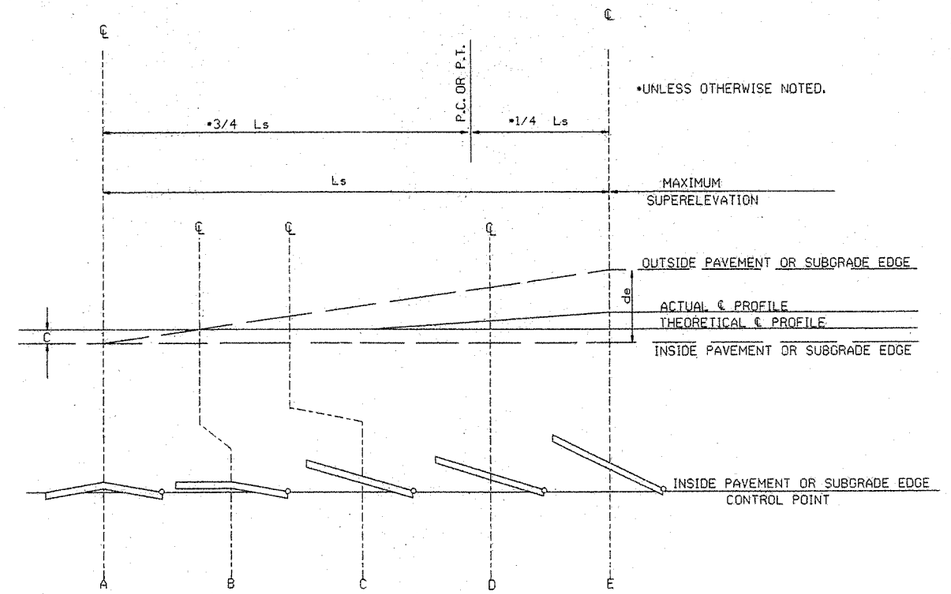
SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH e	30 MPH Ls (FT) MINIMUM	30 MPH Ls (FT) DESIRABLE	40 MPH e	40 MPH Ls (FT) MINIMUM	40 MPH Ls (FT) DESIRABLE	50 MPH e	50 MPH Ls (FT) MINIMUM	50 MPH Ls (FT) DESIRABLE	55 MPH e	55 MPH Ls (FT) MINIMUM	55 MPH Ls (FT) DESIRABLE	60 MPH e	60 MPH Ls (FT) MINIMUM	60 MPH Ls (FT) DESIRABLE	70 MPH e	70 MPH Ls (FT) MINIMUM	70 MPH Ls (FT) DESIRABLE
0° 15′	N. C.			N. C.			N. C.			N. C.			N. C.			N. C.		
0° 30′	N. C.			N. C.			N. C.			0. 022			N. C.			0. 028		
0° 45′	N. C.			N. C.			R. C.			0. 026			0. 023			0. 037	275	300
1° 00′	N. C.			N. C.			0. 021			0. 032			0. 030			0. 046		
1° 15′	N. C.			R. C.			0. 026			0. 037			0. 037			0. 054		
1° 30′	N. C.			0. 021			0. 031	200		0. 043	225	300	0. 043	250	300	0. 062		
1° 45′	N. C.			0. 025	175		0. 036			0. 048			0. 049			0. 070		
2° 00′	R. C.			0. 028			0. 040			0. 053			0. 055			0. 078	300	350
2° 15′	R. C.			0. 031			0. 045		250	0. 058			0. 061			0. 085	315	
2° 30′	0. 021			0. 034			0. 049			0. 063			0. 067			0. 091	335	
2° 45′	0. 023			0. 037		200	0. 053			0. 067	230		0. 072			0. 096	350	400
3° 00′	0. 025			0. 040			0. 057			0. 072	245		0. 077	260		0. 098	360	
3° 15′	0. 027	150		0. 043			0. 061			0. 076	255		0. 082	275		0. 100	360	
3° 30′	0. 029			0. 046			0. 065	205		0. 080	265		0. 086	285				
3° 45′	0. 031		200	0. 049			0. 069	215		0. 083	270		0. 090	295	350			
4° 00′	0. 033			0. 051			0. 072	225		0. 087	280		0. 093	305				
4° 30′	0. 037			0. 056			0. 078	240		0. 091	295		0. 096	315				
5° 00′	0. 040			0. 061			0. 083	250		0. 094	300	350	0. 098	320				
5° 30′	0. 043			0. 066	185		0. 088	260		0. 096	305							
6° 00′	0. 046			0. 070	190		0. 092	270		0. 100	315							
6° 30′	0. 050			0. 074	200		0. 095	280	300									
7° 00′	0. 053			0. 078	210		0. 098	285										
7° 30′	0. 056			0. 081	215		0. 099	290										
8° 00′	0. 058			0. 084	220		0. 100	290										
8° 30′	0. 061			0. 087	225	250												
9° 00′	0. 063			0. 089	230													
10° 00′	0. 068	160		0. 094	235													
11° 00′	0. 072	170		0. 097	250													
12° 00′	0. 076	175		0. 099	250													
13° 00′	0. 080	180		0. 100	250													
14° 00′	0. 083	190																
15° 00′	0. 086	195																
16° 00′	0. 089	200																
17° 00′	0. 091	200																
18° 00′	0. 093	205																
19° 00′	0. 095	210																
20° 00′	0. 097	215	250															
21° 00′	0. 098	215																
22° 00′	0. 099	215																
23° 00′	0. 099	215																
24° 00′	0. 100	220																

D MAX = 24° 45′ | D MAX = 13° 15′ | D MAX = 8° 15′ | D MAX = 6° 30′ | D MAX = 5° 15′ | D MAX = 3° 30′

ABBREVIATIONS

NC - NORMAL CROWN
RC - REVERSE CROWN, SUPERELEVATION AT NORMAL CROWN SLOPE
e - RATE OF SUPERELEVATION (FT. PER FT.)
Ls - LENGTH OF SUPERELEVATION TRANSITION (FT.)
L - DISTANCE FROM BEGINNING OF SUPERELEVATION TRANSITION TO ANY POINT (FT.)
d - WIDTH OF PAVEMENT (FT.) OR WIDTH OF SUBGRADE (FT.)
C - NORMAL CROWN (FT.)



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND INNER SUBGRADE POINT OR INNER PAVEMENT EDGE

NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

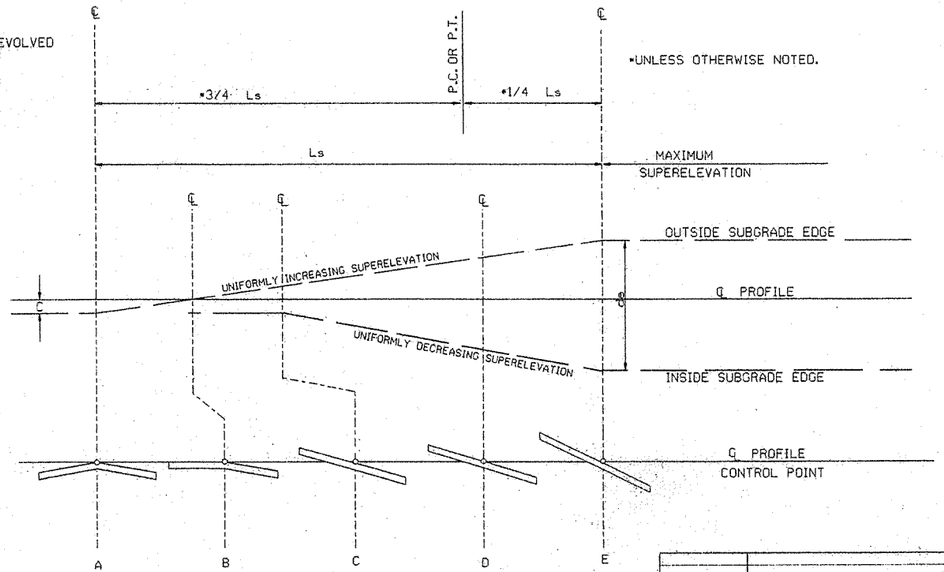
GENERAL NOTES

1. ON PAVEMENT WITH TWO-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE INSIDE PAVEMENT EDGE UNLESS OTHERWISE NOTED ON THE PLANS
2. SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED TO OR SUBTRACTED FROM THE POINT OF CONTROL.
3. LENGTHS FOR L MAY BE ROUNDED IN MULTIPLES OF 25 FT. OR 50 FT. TO PERMIT SIMPLER CALCULATIONS.
4. PAVEMENTS WIDER THAN 2 LANES SHALL HAVE ADDITIONAL TRANSITION LENGTHS AS FOLLOWS:

3 LANE UNDIVIDED - - - - - +20%
4 LANE UNDIVIDED - - - - - +50%
5 LANE UNDIVIDED - - - - - +80%
6 LANE UNDIVIDED - - - - - +100%

NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

RATE OF SUPERELEVATION SHALL BE COMPUTED ON STRAIGHT LINE METHOD USING APPLICABLE Ls.



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE

SUPERELEVATION FORMULA = $\frac{Lde}{Ls}$

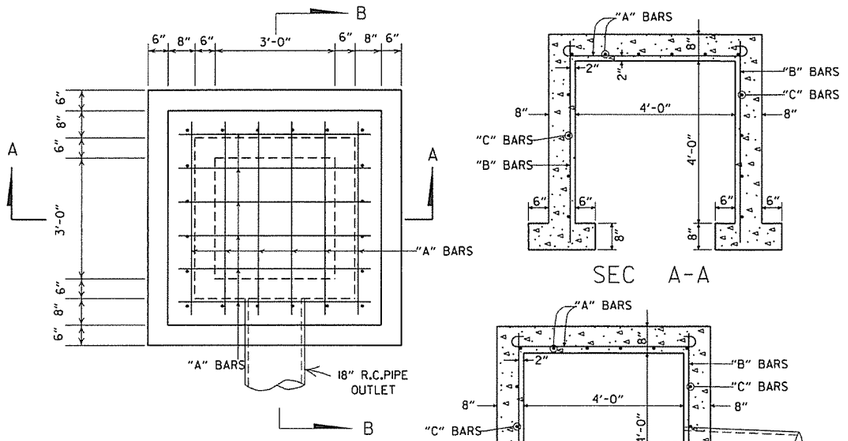
DATE	REVISION	DATE FILMED
10-16-96	ADDED FORMULA	10-18-96
01-09-87	ISSUED	534-1-9-87

ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2

FILE STDSE2.DGN

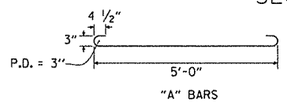


NOTE: MAX FILL HEIGHT ABOVE TOP OF BOX = 13'-0".

STEEL SCHEDULE

BARS	NUMBER	LENGTH	SPACING
"A"	12	6'-0"	10"
"B"	20	5'-0"	10 ½"
"C"	16	5'-0"	12"

ALL STEEL TO BE #4 BARS



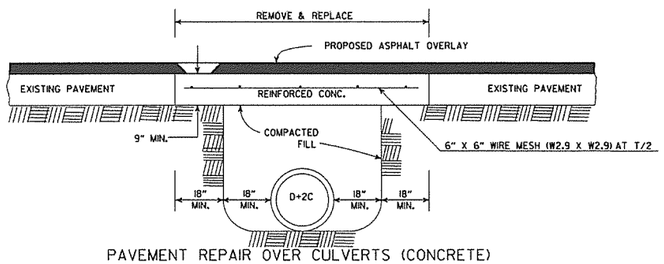
QUANTITIES

CONCRETE 3.31 CU. YDS.
REINFORCING STEEL 168 LB.

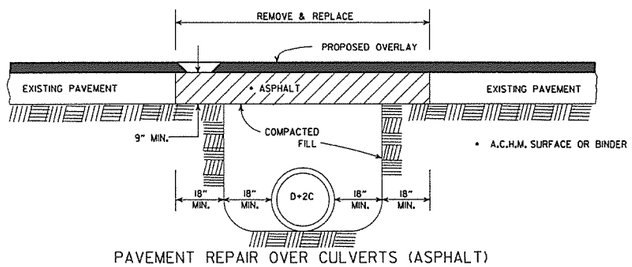
GENERAL NOTE:

THE PAY ITEMS FOR REINFORCED CONCRETE SPRING BOXES SHALL BE FOR THE QUANTITTIES OF CONCRETE OF THE CLASS SPECIFIED, REINFORCING STEEL, EXCAVATION FOR STRUCTURES AND 18" R.C. PIPE CULVERT.

REINFORCED CONCRETE SPRING BOX



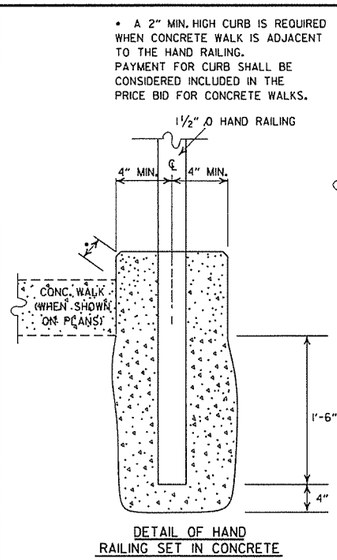
PAVEMENT REPAIR OVER CULVERTS (CONCRETE)



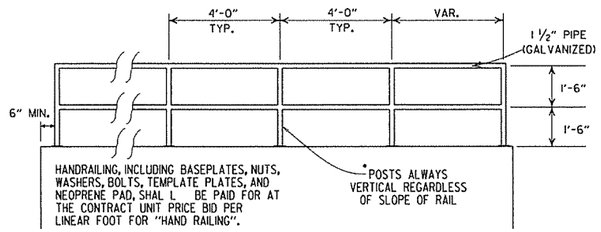
PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS

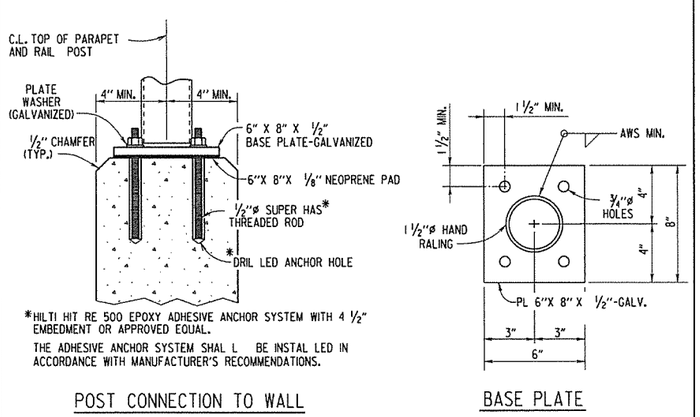
* A 2" MIN. HIGH CURB IS REQUIRED WHEN CONCRETE WALK IS ADJACENT TO THE HAND RAILING. PAYMENT FOR CURB SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR CONCRETE WALKS.



POST CONNECTION DETAILS

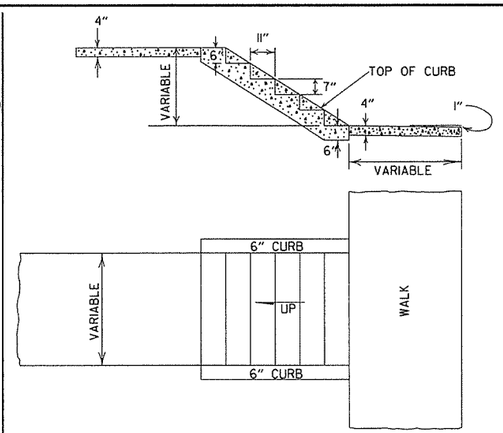


HAND RAILING SHALL CONFORM TO SECTION 633.



DETAILS OF ALTERNATE POST ANCHOR SYSTEM (EPOXY ADHESIVE ANCHORS)

HAND RAILING DETAILS



GENERAL NOTES

1. RISE AND TREAD DIMENSIONS OF STEPS MAY BE VARIED AS DIRECTED BY THE ENGINEER, HOWEVER, TREAD WIDTHS SHALL BE 11" MIN. ALL STEPS IN A FLIGHT SHALL HAVE CONSISTENT TREAD & RISER DIMENSIONS.
2. 1" TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE WALKS AT 45' INTERVALS.

DETAILS OF CONCRETE STEPS & WALKS

DATE	REVISION	DATE FILMED
9-12-13	REVISED REINFORCED CONCRETE SPRING BOX	
7-26-12	REMOVED RETAINING WALL DETAILS & REVISED HAND RAILING DETAILS	
4-17-08	REV. JOINT & FOOTING STEP DETAILS	
11-29-07	REVISED RETAINING WALL DRAINAGE	
5-25-06	REVISED PVMT REPAIR OVER CULVERTS (CONC); REVISED REINFORCED CONC SPRING BOX	
10-9-03	REVISED PIPE RAILING DETAILS TO HAND RAILING DETAILS	
4-10-03	REVISED RETAINING WALL DRAWING	
8-22-02	ADDED HAND RAILING DETAIL	
11-16-01	REVISED PVMT REPAIR OVER CULVERTS (CONC); CORRECTED SPELLING IN GENERAL NOTES	
11-18-98	ADDED GENERAL NOTES TO CONCRETE STEPS & WALKS	
7-02-98	ENLARGED PIPE	
4-03-97	ADDED NOTE TO STEEL BAR SCHED.	
10-18-96	CORRECTED SPELLING	
4-26-96	ADD WEEP HOLE; REV. JOINT SPACING IN RET. WALL	
6-2-94	CHANGED CONST. TO CONTRACTION JOINT	
10-1-92	CHANGED MESH FABRIC TO WIRE MESH	10-1-92
8-15-91	DELETED HDWL MODIFICATION DETAIL	8-15-91
11-8-90	DELETED COLD MIX FROM CULV'T. REPAIR	11-8-90
11-30-89	REV. RETAINING WALL STEEL SCHEDULE	11-30-89
11-17-88	V. BARS BEHIND ARROW	665-11-17-88
7-15-88	REV. PAVEMENT REPAIR ADDED HDWL. MODS, DEL. PIPE UNDERDRAINS	649-7-15-88
11-1-84	REV. TRENCH FOR PIPE UNDERDRAIN	510-11-1-84
1-4-83	ELIMINATED CONC. CLASS & ADDED CHAMFER NOTE	682-1-4-83
3-2-81	SPELLING OF "UNDERDRAIN"	721-3-2-81
4-20-79	REV. UNDERDRAIN DET& PAVEMENT REPAIR	674-4-20-79
2-2-76	12"MIN. GRAN. MAT'L. OVER PIPE	919-2-2-76
4-10-75	REM. SPECS. FOR GRAN. MAT'L.	568-4-10-75-853
5-22-74	GRANULAR MAT'L. TO BE SB-3	567-5-22-74-740
10-2-72	REVISED AND REDRAWN	564-10-16-72

ARKANSAS STATE HIGHWAY COMMISSION

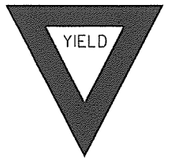
DETAILS OF SPECIAL ITEMS

STANDARD DRAWING SI-1

R1-1

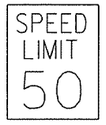
STANDARD 30"X30"
EXPRESSWAY 36"X36"
SPECIAL 48"X48"

R1-2



STD. 36"X36"X36"
EXPWY. 48"X48"X48"
FWY. 60"X60"X60"

R2-1



STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R2-5A

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R2-5C

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R4-1

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R4-2

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

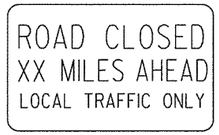
R5-1

STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

RII-2

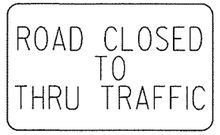
48"X30"

RII-3A



60"X30"

RII-4

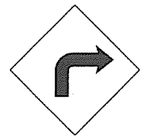


60"X30"

RSP-1

48"X30"

WI-1



STD. 36"X36"
FWY. 48"X48"

WI-2

STD. 36"X36"
FWY. 48"X48"

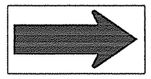
WI-3

STD. 48"X48"

WI-4

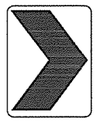
STD. 48"X48"

WI-6



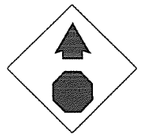
STD. 48"X24"
SPECIAL 60"X30"

WI-8



STD. 18"X24"
SPECIAL 24"X30"
EXPWY. 30"X36"
FWY. 36"X48"

W3-1

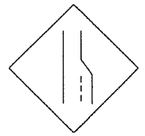


STD. 36"X36"
SPECIAL 48"X48"

W3-2

STD. 36"X36"
SPECIAL 48"X48"

W4-2

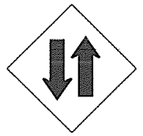


STD. 36"X36"
FWY. 48"X48"

W5-1

STD. 36"X36"
SPECIAL 48"X48"

W6-3



EXPWY. 36"X36"
SPECIAL 48"X48"

W8-7

EXPWY. 36"X36"
FWY. 48"X48"

W9-2

STD. 36"X36"
FWY. 48"X48"

WI3-1

STD. 24"X24"

W20-1

STD. 48"X48"

W20-2

STD. 48"X48"

W20-3

STD. 48"X48"

W20-4

STD. 48"X48"

W20-5

STD. 48"X48"

W20-7a

STD. 36"X36"
FWY. 48"X48"

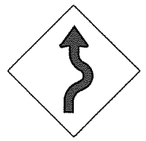
W21-2

STD. 30"X30"
SPECIAL 36"X36"

W21-5

STD. 30"X30"
SPECIAL 36"X36"

W24-1



STD. 36"X36"

WI-4b

STD. 48"X48"

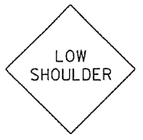
R56-1

STD. 18"X18"

W8-11

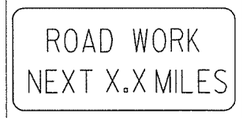
STD. 36"X36"
FWY. 48"X48"

W8-9



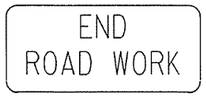
STD. 36"X36"
FWY. 48"X48"

G20-1



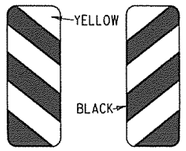
60"X24"

G20-2



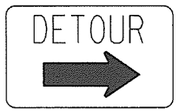
48"X24"

OM-3L OM-3R



12"X36"

M4-9



STD. 30"X24"
SPECIAL 48"X36"
SPECIAL 60"X48"

M4-10

48"X18"

R55-1

FINES DOUBLE
IN WORK ZONES *

WHEN WORKERS
ARE PRESENT **

36"X60"

* USE 6" C LETTERS
** USE 4" D LETTERS

ADVANCE DISTANCES
(XXXX)

500 FT	1/2 MILE
1000 FT	3/4 MILE
1500 FT	1 MILE
	AHEAD

GENERAL NOTES:

1. ALL TRAFFIC CONTROL DEVICES USED ON ROAD CONSTRUCTION SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, AND TO THE STANDARD HIGHWAY SIGNS, LATEST EDITION, OR AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION.

2. TRAFFIC CONTROL DEVICES SHALL BE SET UP JUST BEFORE THE START OF CONSTRUCTION OPERATIONS AND SHALL BE PROPERLY MAINTAINED DURING THE TIME SUCH CONDITIONS EXIST. THEY SHALL REMAIN IN PLACE ONLY AS LONG AS NEEDED AND REMOVED THEREAFTER.

3. EXISTING SIGNS AND CONSTRUCTION SIGNS SHALL BE KEPT IN PROPER POSITION, AND BE CLEAN AND LEGIBLE AT ALL TIMES. SIGNS THAT DO NOT APPLY TO EXISTING CONDITIONS SHALL BE REMOVED. SIGNS THAT ARE DAMAGED, DEFACED, OR THAT ACCUMULATE DIRT DURING CONSTRUCTION SHALL BE CLEANED, REPAIRED, OR REPLACED.

• 4. SIGNS ARE USUALLY MOUNTED ON A SINGLE POST, ALTHOUGH THOSE WIDER THAN 36" OR LARGER THAN 10 SQ. FT. SHALL BE MOUNTED ON TWO POSTS OR ABOVE A TYPE III BARRICADE.

• 5. SIGN POSTS DIRECT BURIED IN SOIL SHALL BE 2 LB. MINIMUM CHANNEL POST OR 4"x4" WOOD POSTS. CHANNEL POSTS SHALL BE PAINTED GREEN. WOOD POSTS SHALL BE PAINTED WHITE. ALL POSTS SHALL BE NEATLY CONSTRUCTED, AND SHALL BE REPLUMBED, CLEANED, OR REPAIRED AS NEEDED FOR THE DURATION OF THE JOB. THERE SHALL NOT BE MORE THAN 2 POSTS IN A 7' PATH FOR WOOD OR CHANNEL POSTS. ANY CHANNEL POST SPLICE SHALL BE IN ACCORDANCE WITH STANDARD DRAWING TC-3.

6. POST MOUNTED SIGNS IN RURAL AREAS SHALL BE CONSTRUCTED WITH THE NEAR EDGE OF THE SIGN FROM 6 TO 12 FEET FROM THE PAVEMENT EDGE. SIGNS IN URBAN AREAS AND BARRICADE MOUNTED SIGNS SHALL BE MOUNTED A MINIMUM OF 2 FEET FROM THE PAVEMENT EDGE.

7. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN URBAN AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN RURAL AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE, EXCEPT A MINIMUM OF 6' SHALL BE USED WHEN MOUNTING AN ADVISORY SIGN BELOW A WARNING SIGN. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR INTERMEDIATE TERM STATIONARY WORK CONDITIONS. THE SIGNS MINIMUM MOUNTING HEIGHT SHALL BE 5'. RETROREFLECTIVE DEVICES SHALL BE USED. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR SHORT-TERM, SHORT DURATION, AND MOBILE CONDITIONS. THEY SHALL BE NO LESS THAN ONE (1) FOOT ABOVE THE TRAVELED WAY. LONG-TERM STATIONARY SIGNS SHALL BE DIRECT BURIED IN SOIL, UNLESS CONDITIONS NECESSITATE THE USE OF PORTABLE SIGNS, OR AS APPROVED BY THE ENGINEER. CONCRETE PADS, CONCRETE OR ROCK BALLAST, OR OTHER SOLID MATERIALS SHALL NOT BE UTILIZED WITH PORTABLE SIGN SUPPORTS.

8. FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.

9. MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER DIRECTION OF MOVEMENT.

10. R55-1 SIGNS SHALL BE PLACED AT LEAST 1500' BUT NOT MORE THAN 1 MILE IN ADVANCE OF THE WORK ZONE. IF A SPEED LIMIT REDUCTION IS IN EFFECT, THE SIGN SHALL BE PLACED A MINIMUM OF 500' IN ADVANCE OF THE "REDUCED SPEED AHEAD" SIGN.

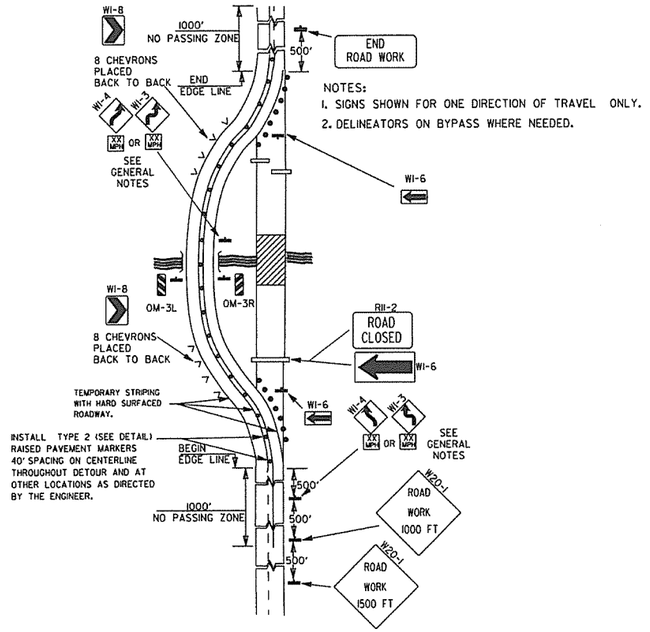
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED FOR ALL PROJECTS.

DATE	REVISION	FILMED
12-15-11	REVISED W24-1	
11-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
11-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
11-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
11-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	ADDED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	6-8-95
2-2-95	REVISED PER PART VI, MUTCD SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

ARKANSAS STATE HIGHWAY COMMISSION

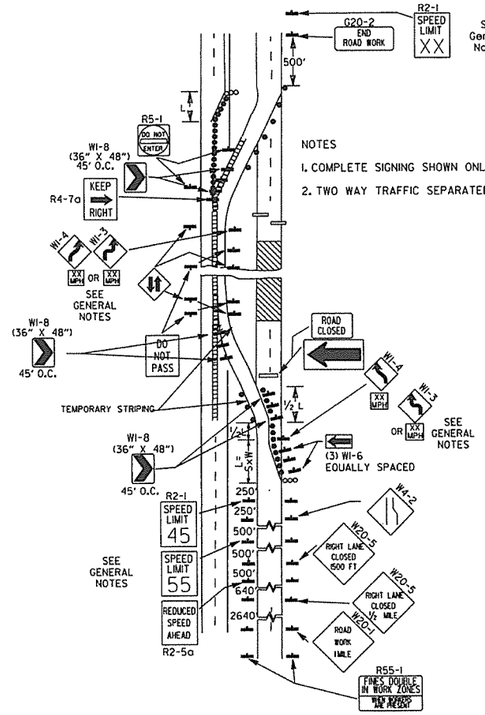
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



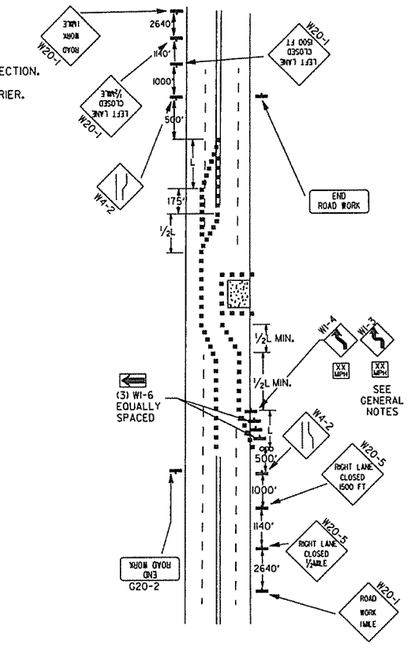
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.

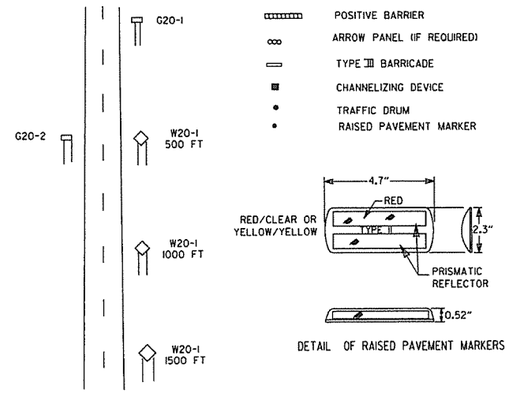


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.



(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



DETAIL OF RAISED PAVEMENT MARKERS

TYPICAL ADVANCE WARNING SIGN PLACEMENT

TAPER FORMULAE:

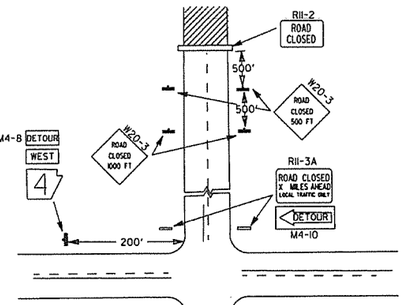
L=SXW FOR SPEEDS OF 45MPH OR MORE.

$L = \frac{WS^2}{60}$ FOR SPEEDS OF 40MPH OR LESS.

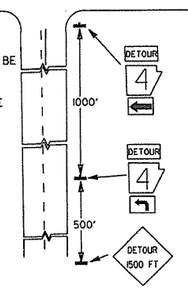
WHERE:
L= MINIMUM LENGTH OF TAPER.
S= NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.
W= WIDTH OF OFFSET.

GENERAL NOTES:

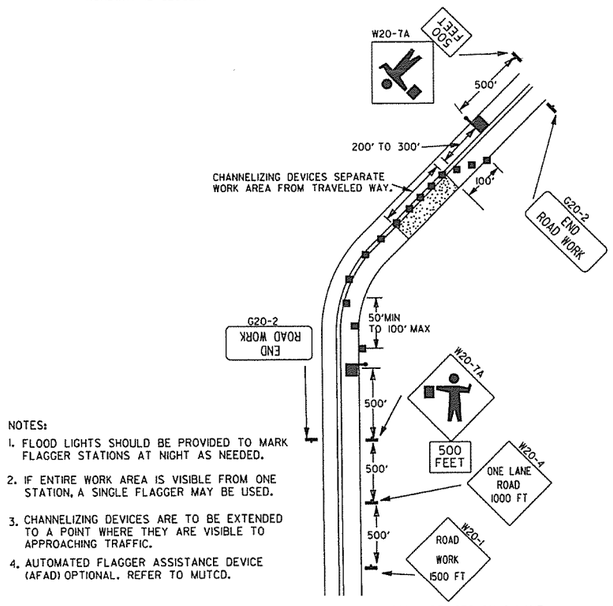
1. ADVISORY SPEED POSTED ON WI-3 OR WI-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE WI-4 WHEN SPEED IS GREATER THAN 30MPH AND WI-3 WHEN 30MPH OR LESS.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE R2-5A SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1 45MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(45) SHALL BE OMITTED. ADDITIONAL R2-1 55MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT, OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE.



NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

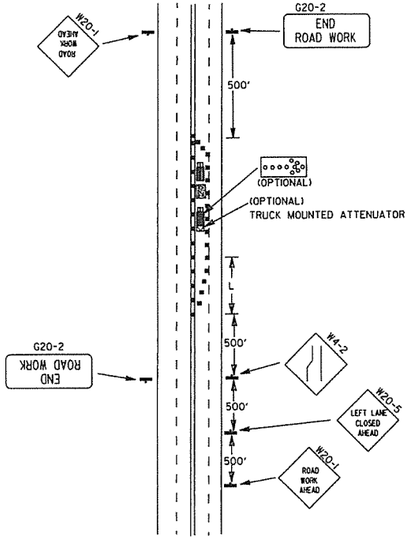


(D) TYPICAL APPLICATION - ROADWAY CLOSED BEYOND DETOUR POINT.



NOTES:
1. FLOOD LIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED.
2. IF ENTIRE WORK AREA IS VISIBLE FROM ONE STATION, A SINGLE FLAGGER MAY BE USED.
3. CHANNELIZING DEVICES ARE TO BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
4. AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD) OPTIONAL. REFER TO MUTCD.

(E) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON 2-LANE HIGHWAY WHERE ONE LANE IS CLOSED AND FLAGGING IS PROVIDED.



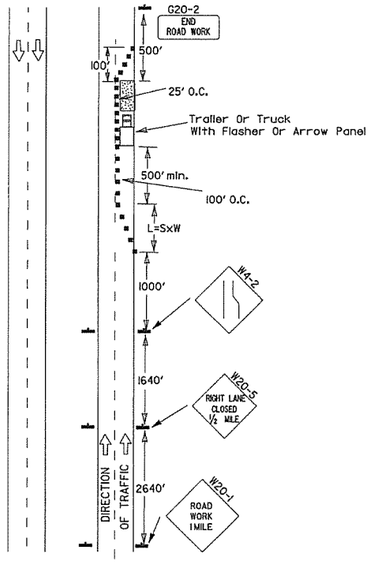
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

DATE	REVISION	FILMED
9-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-11-10	ADDED (AFADI	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON WI-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

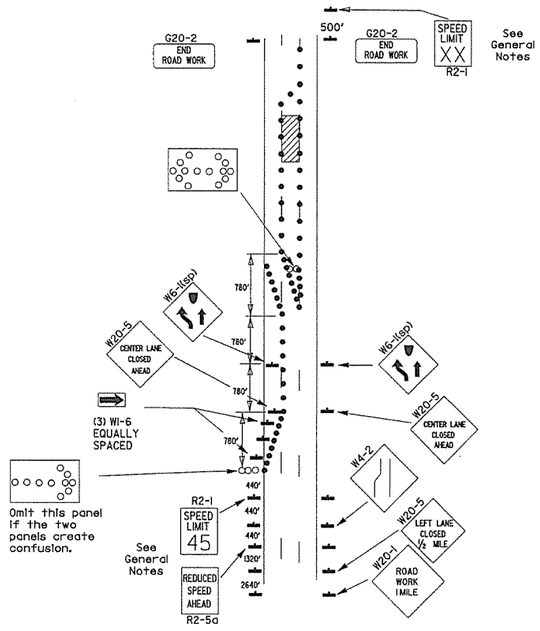
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

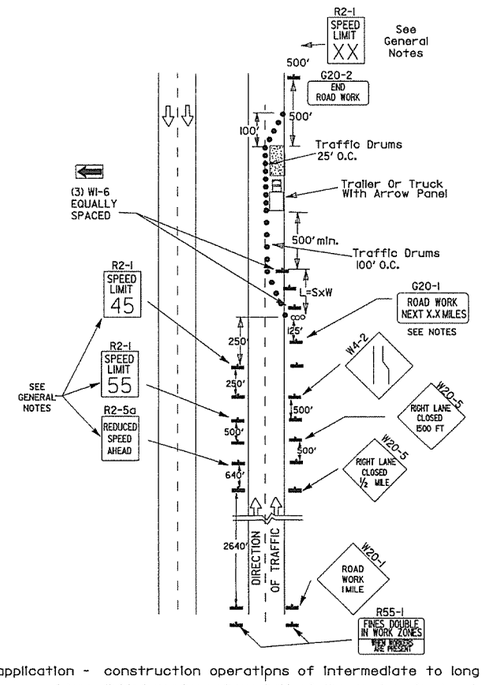
STANDARD DRAWING TC-2



(A) Typical application - daytime maintenance operations of short duration on a 4-lane divided roadway where half of the roadway is closed.



(B) Typical application - 3-lane oneway roadway where center lane is closed.



(C) Typical application - construction operations of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.

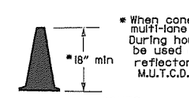
KEY:

- ○○○ Arrow Panel (If Required)
- ■ Channelizing Device
- ● Traffic drum

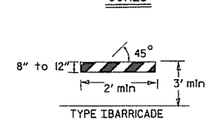
GENERAL NOTES:

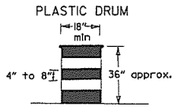
1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the R2-5A shall be installed at that location. Additional R2-1 45mph speed limit signs shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
3. When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(45) shall be omitted. Additional R2-1 55mph speed limit signs shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
4. The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit. Beyond the taper, maximum spacing shall be two times the speed limit or as directed by the Engineer.
5. Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
6. Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
7. The G20-1 sign will be required on jobs of over two miles in length. When the lane closure is not at the beginning of the project, the G20-1 sign shall be erected 125' in advance of the job limit. Additional W20-1 (1 MILE) signs are not required in advance of lane closures that begin inside the project limits.
8. Flaggers shall use STOP/SLOW paddles for controlling traffic through work zones. Flags may be used only for emergency situations.
9. All plastic drums and cones shall meet the requirements of NCHRP-350 or Manual For Assessing Safety Hardware (MASH).
10. Trailer mounted devices such as arrow panels and portable changeable message signs shall be delineated by affixing conspicuity material in a continuous line on the face of the trailer. When placed on or adjacent to the shoulder and not behind a positive barrier, these devices shall be delineated by placing five (5) traffic drums, equally spaced along the traffic side of the device.

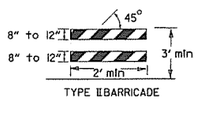
Channelizing devices

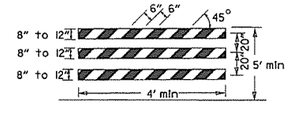


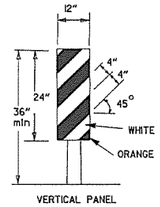
* When cones are used on freeways and multi-lane highways, they shall be 28" min. During hours of darkness, 28" cones shall be used on all roadways, and shall be reflectorized in accordance with the M.U.T.C.D.











NOTE:
For all road closures, the Type III barricades shall be of sufficient length to extend across entire roadway.

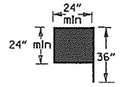
TRAFFIC CONTROL DEVICES
FOR
VERTICAL PAVEMENT DIFFERENTIALS

VERTICAL DIFFERENTIAL	LOCATIONS	TRAFFIC CONTROL
1" to 3"	Centerline, lane lines	W8-11
1" to 3"	Edge of shoulder	W8-9
Greater than 3"	Lane lines	Standard lane closure required
Greater than 3"	Edge of traveled lane	*RSP-1 and vertical panels, drums or concrete barrier
Greater than 3"	Edge of shoulder	*Vertical panels, drums or concrete barrier

* When shown on the plans concrete barrier will be used.

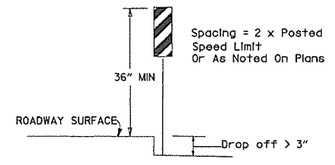
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.

FLAG

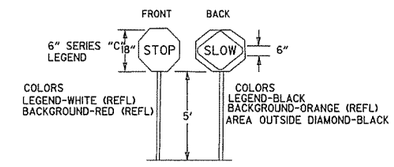


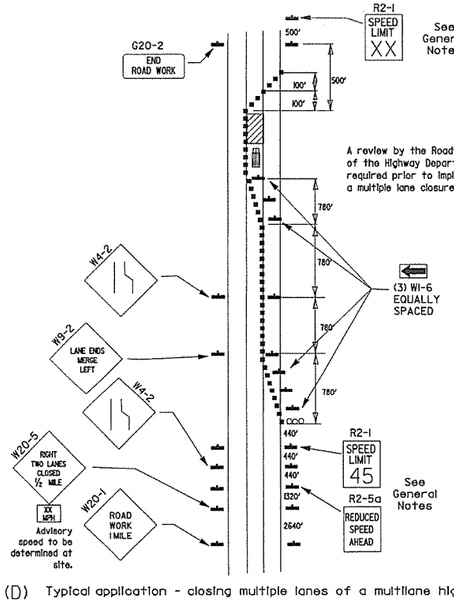
Flag shall be of good grade red material

VERTICAL PANEL PLACEMENT



STOP SLOW PADDLE

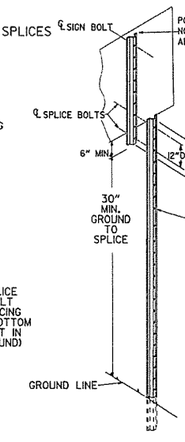




A review by the Roadway Design Division of the Highway Department will be required prior to implementing a multiple lane closure.

(D) Typical application - closing multiple lanes of a multilane highway.

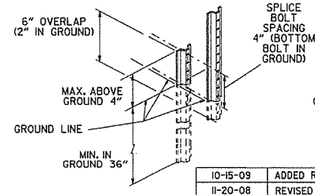
DETAIL OF SPLICES



NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-2)

NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE BOLTS.

SIGN POSTS SHALL BE PAINTED GREEN; SIGNS SHALL NOT BE PAINTED, AND ALL SIGN POSTS SHALL BE PLUMB.



DATE	REVISION	FILMED
10-15-09	ADDED REFERENCE TO MASH	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SP) TO W6-1 & REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R55-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

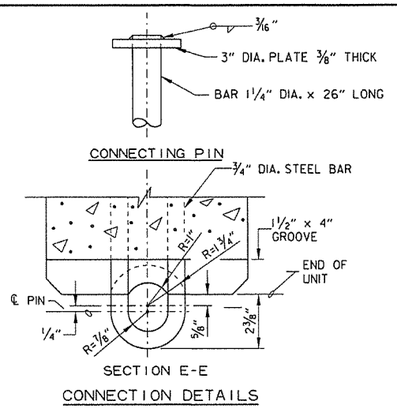
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

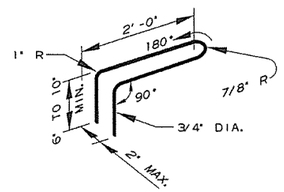
STANDARD DRAWING TC-3

REINFORCING BAR TABLE PER BARRIER UNIT

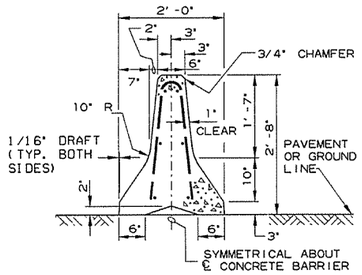
MARK	LOCATION	BAR SIZE	(NO. BARS)	SKETCH
H-1	HORIZONTAL IN BARRIER TIED INSIDE V-1 BARS	#5	(6)	19'-3"
H-2	CENTERED ABOVE DRAIN SLOTS LONG. & TRANSVERSELY	#5	(6)	6'-6"
H-3	TIED ABOVE H-1 BARS TO SUPPORT H-2, TIED TO V-1	#4	(2)	1'-6"
S-1	OVER LIFT HOLES	#4	(2)	2'-5", LIFTING HOLE, 90°, 3 3/8" R
S-2	HORIZ. AROUND SLOTS BETWEEN V-1'S @ DRAIN SLOTS	#4	(2)	1 1/2" R, SLOTS, 7", 1'-6", 1" MIN. CLEAR TO BAR; 5'-1" BAR W/(4) 1 1/2" R BENDS & MIN. 1'-0" OVERLAP
V-1	VERTICAL IN BARRIER(3) EACH END & (2) AT EACH DRAIN SLOTS	#5	(16)	TOTAL LENGTH 4'-9"; 2 3/16" R; 12°; 1 1/2"; 9"; 2'-1 3/8"; 4 3/8"



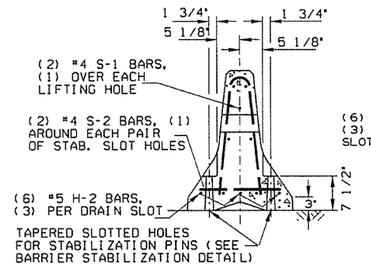
CONNECTION DETAILS



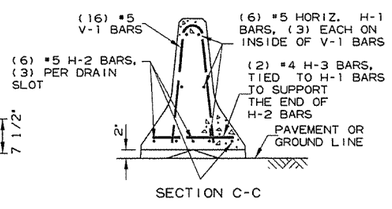
CONNECTION LOOP



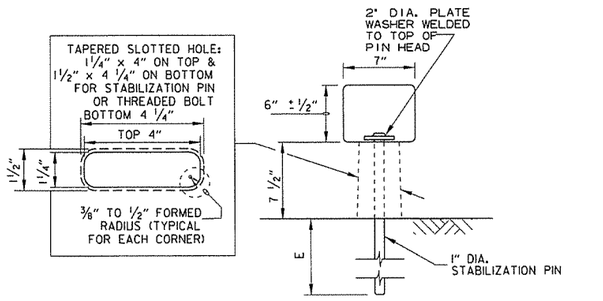
SECTION A-A



SECTION B-B



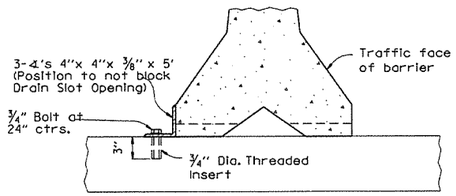
SECTION C-C



BARRIER STABILIZATION DETAIL

ROADWAY SECTION

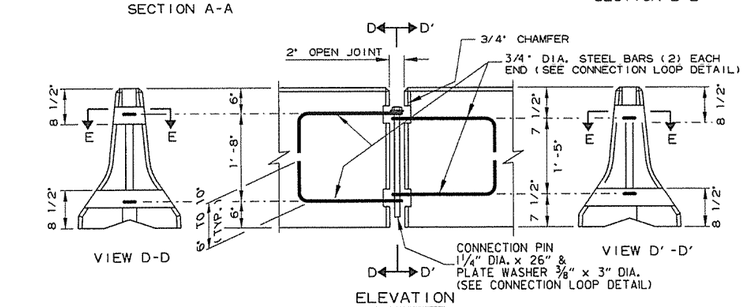
(E) 4" - Concrete Pavement
8" - Asphalt Pavement
12" - Shoulder Areas



NOTE: 3/4" Threaded Inserts shall be cast in place for all new bridge decks and drilled and grouted for existing bridge decks. Inserts shall have a minimum ultimate load capacity of 8000 lbs. in tension. After removal of barrier, bolts, and angles, the inserts shall be filled with approved non-shrink epoxy.

BARRIER STABILIZATION DETAIL

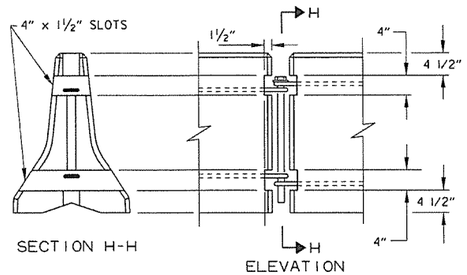
BRIDGE DECKS



VIEW D-D

VIEW D'-D'

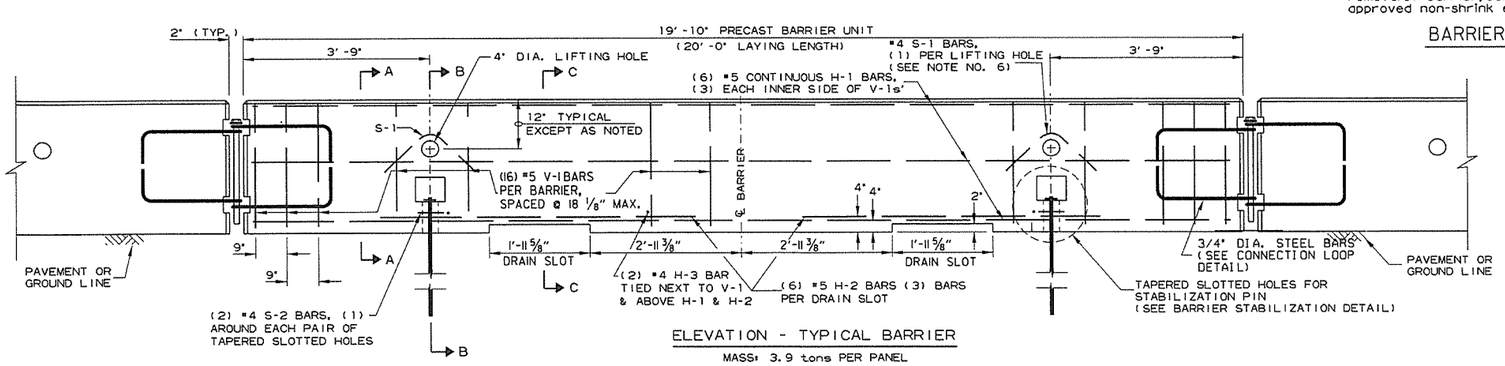
ELEVATION



SECTION H-H

ELEVATION

BARRIER REMOVAL SLOT DETAILS



ELEVATION - TYPICAL BARRIER

MASS: 3.9 tons PER PANEL

General Notes

1. The contractor shall furnish the Precast Concrete Barrier Units and shall be responsible for the manufacture, shipment, storage, placement and removal. At the completion of the project, the precast units will remain the property of the contractor.

2. Materials shall meet the following minimum requirements:
   Concrete: 2500 psi compressive strength at 28 days.
   Reinforcing Steel: AASHTO M 31 or M 53, Grade 60
   Structural Steel: AASHTO-M270 Grade 36 shall be used for the Connection Pin, Connection Loops, and Stabilization Pins. A One Piece Pin with a 3" rounded top may be used in place of the detailed Connection Pin.
   Delineators: Delineators shall be mounted at 10' spacing on top of precast barrier.

   In applications where barrier wall is within 6 feet of a traffic lane, additional delineators shall be placed on the barrier at 10' spacing approximately one (1) foot from the top of the barrier. Delineators shall be on the AHTD Qualified Products List for Construction Concrete Barrier Markers.
   Delineator color shall be in accordance with the Manual on Uniform Traffic Control Devices.
   Payment for delineators shall be considered included in the price bid per Lin. Ft. for "Furnishing and Installing Precast Concrete Barrier". The contractor shall certify to the Engineer that the material and the design used in the precast barrier units meets the requirements as shown on this standard drawing.

3. Other Precast Concrete Barriers that have been crash tested and approved by the Federal Highway Administration to meet the requirements of NCHRP-350 test level 3 or Manual For Assessing Safety Hardware (MASH) will be accepted in lieu of the barrier shown. Drain slots shall be provided as needed or as directed by the Engineer. The Contractor shall furnish a certification of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) compliance for any other types of precast barrier to be used. The certification shall state that the precast concrete barrier meets the requirements of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) and include a copy of the Federal Highway Administration's (FHWA) approval letter with all attachments. Precast concrete barrier units shall be fabricated and installed in accordance with crash testing and documentation provided in the FHWA approval letter. Mixing of shapes will not be allowed in a continuous line of units.

4. Dowel holes in pavement or bridge slabs that are to remain in place shall be filled. Holes in concrete pavement and bridge slabs shall be filled with an approved non-shrink epoxy grout. Holes in asphalt pavement shall be filled with an approved asphalt joint filler. Payment for drilling and filling holes to be included in the price for various barrier items.

5. Attach Units To Roadway Surface with Stabilization Pins and to Deck Slabs using bolts when required.

6. A 4" White PVC Sleeve may be used to form the Lifting Hole and if used the Sleeve is to be left in place.

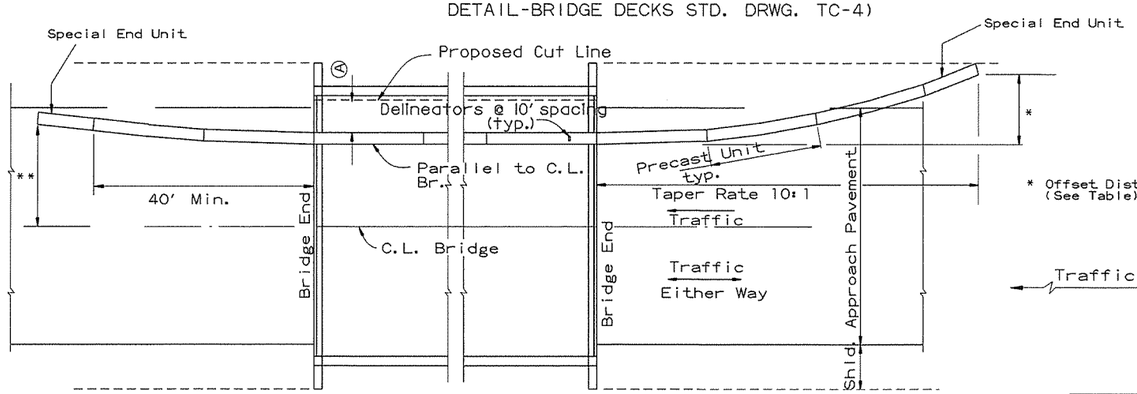
DATE	REVISION	FILMED
2-27-14	REVISED BARRIER STABILIZATION DETAIL	
10-15-09	ADDED REFERENCE TO MASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED GENERAL NOTE 2	
8-22-02	ISSUED NEW DRAWING	

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

STANDARD DRAWING TC-4

Ⓐ 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)

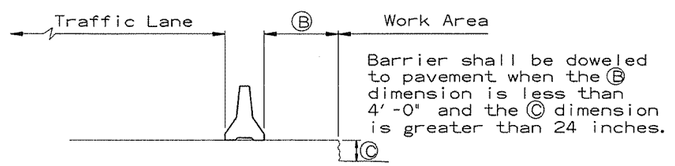


BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

* Offset Distance (See Table)

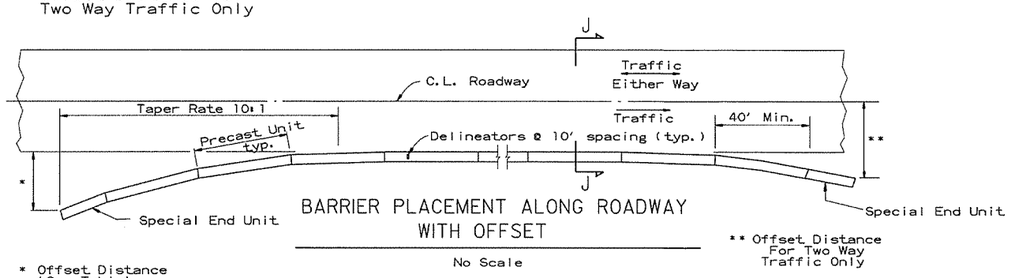
** Offset Distance for Two Way Traffic Only



Barrier shall be doweled to pavement when the Ⓑ dimension is less than 4'-0" and the Ⓒ dimension is greater than 24 inches.

SECTION J-J

No Scale



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

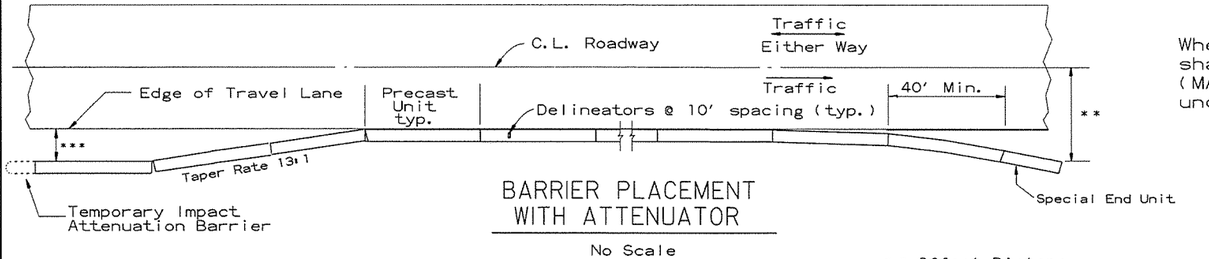
* Offset Distance (See Table)

** Offset Distance For Two Way Traffic Only

Offset Distance Table

Speed (MPH)	Offset Distance (FT.)
≤ 45	12
> 45	18

If offset distance is not attainable, then see "Barrier Placement With Attenuator" Detail shown below.

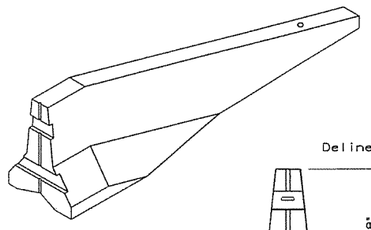


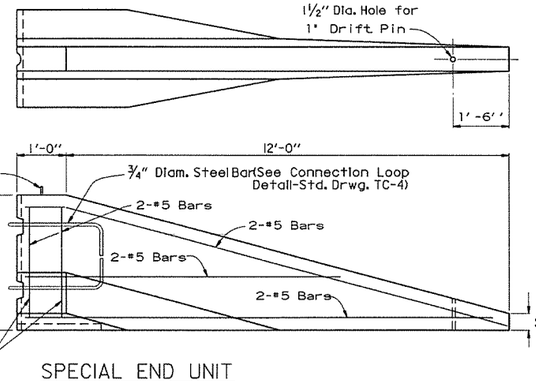
BARRIER PLACEMENT WITH ATTENUATOR

No Scale

*** Min. 3'-0" From Edge of Travel Lane to Nearest Edge of Attenuator

** Offset Distance For Two Way Traffic Only





SPECIAL END UNIT

No Scale

General Notes

When shown on the Plans, the ends of the Temporary Precast Concrete Barrier shall be protected with an NCHRP-350 or Manual For Assessing Safety Hardware (MASH) approved Crash Cushion. Payment for Crash Cushions shall be made under the item of "Temporary Impact Attenuation Barrier."

DATE	REVISION	FILMED
10-15-09	ADDED REFERENCE TO MASH	
5-25-06	REVISED BARRIER PLACEMENT	
8-22-02	ISSUED NEW DRAWING	

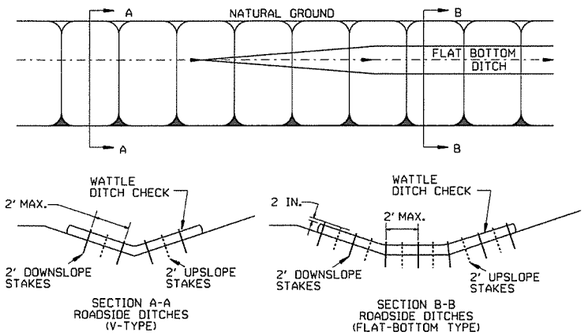
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

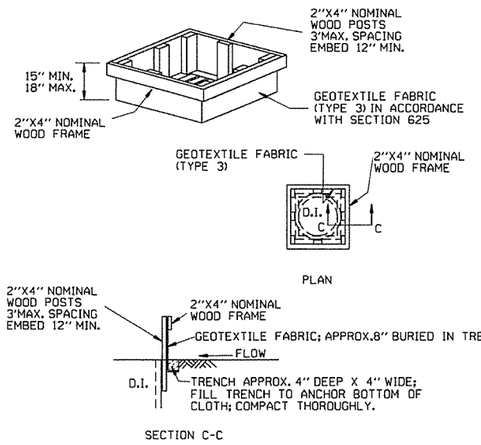
STANDARD DRAWING TC-5

GENERAL NOTES

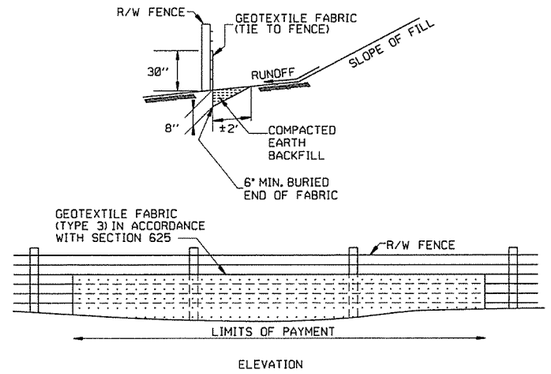
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



DROP INLET SILT FENCE (E-7)



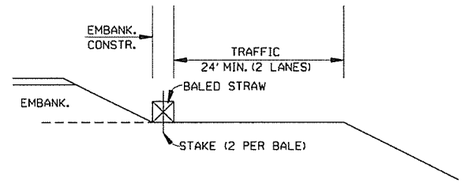
SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

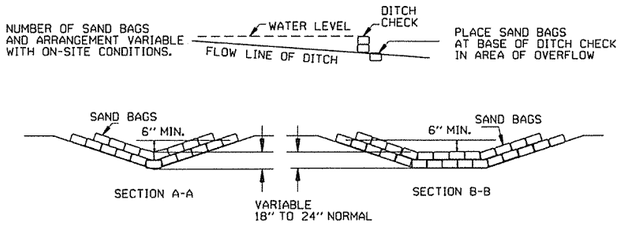
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

GENERAL NOTES

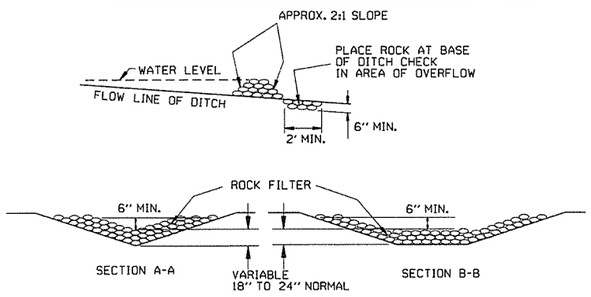
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.
2. NO GAPS SHALL BE LEFT BETWEEN BALES.
3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.



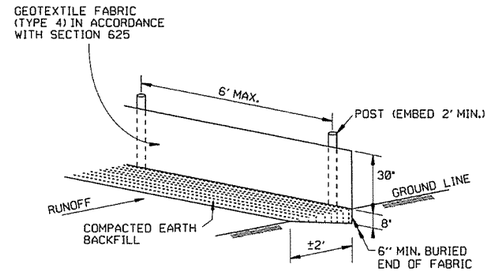
BALED STRAW FILTER BARRIER (E-2)



SAND BAG DITCH CHECK (E-5)



ROCK DITCH CHECK (E-6)



SILT FENCE (E-11)

GENERAL NOTES

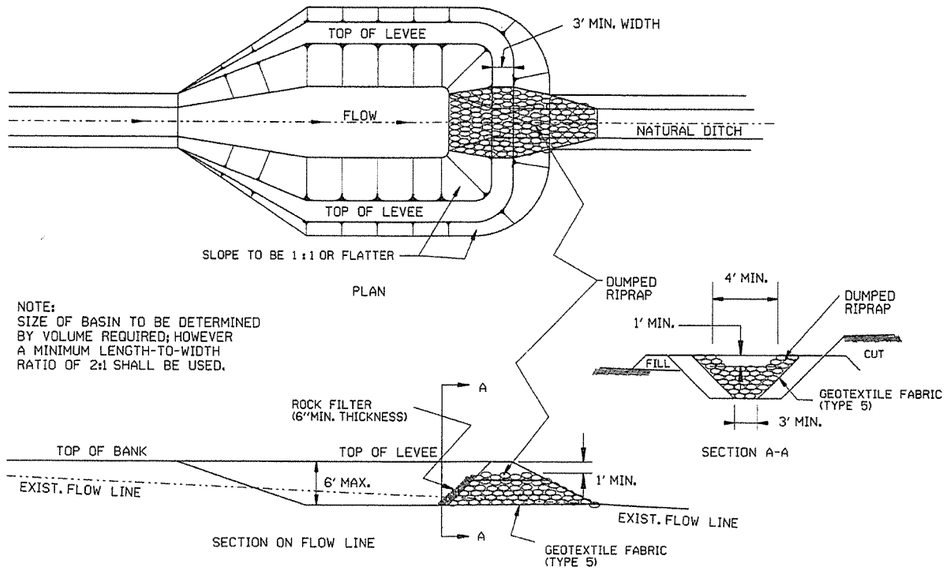
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

DATE	REVISION	FILMED
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK	
11-18-98	ADDED NOTES	
7-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)	
7-20-95	REVISED SILT FENCE E-4 AND E-11	7-20-95
7-15-94	REV. E-4 & E-11 MIN. 13" BURIED END OF FABRIC	
6-2-94	REVISED E-1,4,7 & 11; DELETED E-2 & 3	6-2-94
4-1-93	REDRAWN	
10-1-92	REDRAWN	
8-2-76	ISSUED R.D.M.	298-7-28-76

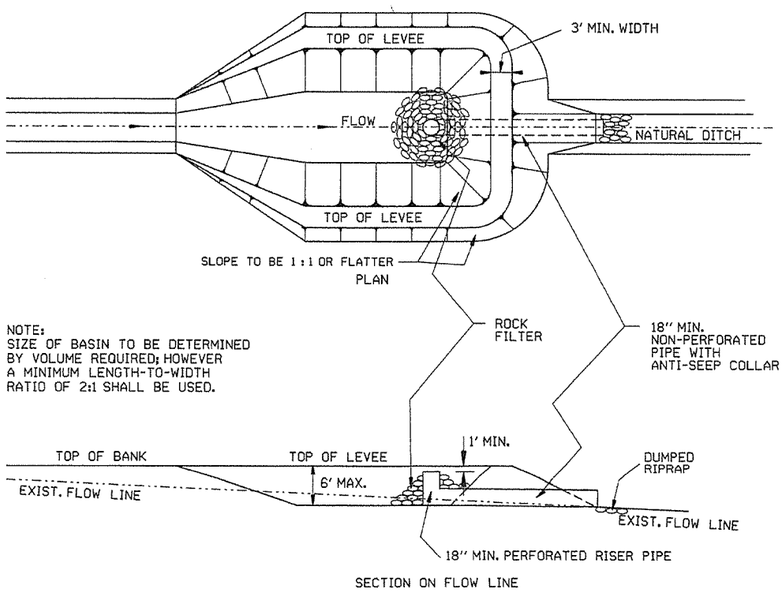
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

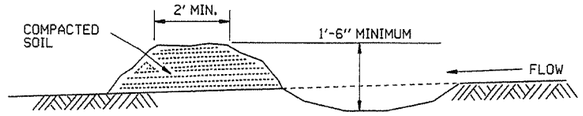
STANDARD DRAWING TEC-1



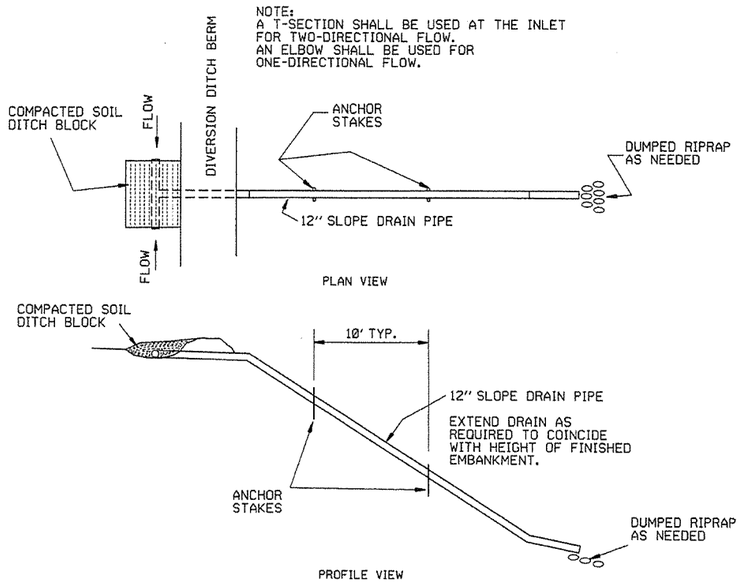
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



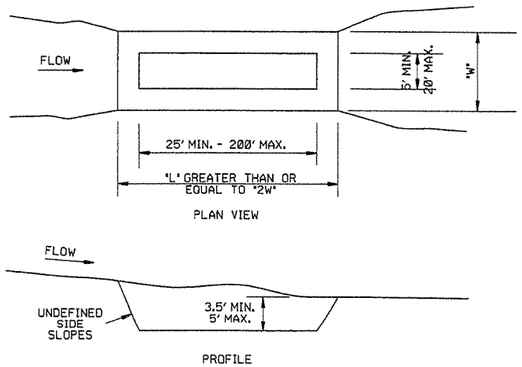
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

DATE	REVISION	FILMED
6-2-94	Revised E-8 & E-12; Added E-14 & Deleted E-13	
4-1-93	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

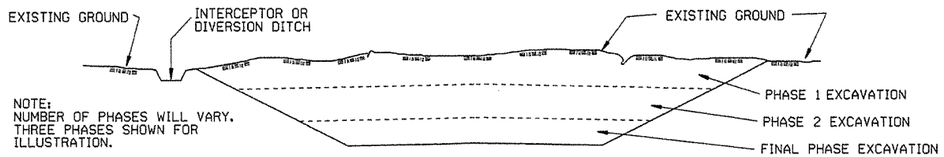
STANDARD DRAWING TEC-2

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

1. PLACE PERIMETER CONTROLS (I.E. SILT FENCES , DIVERSION DITCHES, SEDIMENT BASINS, ETC.)
2. PERFORM CLEARING AND GRUBBING OPERATION.

EXCAVATION



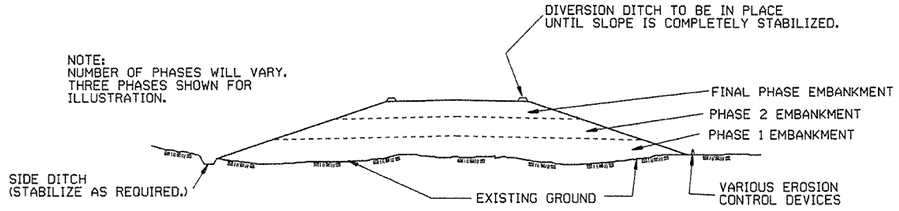
GENERAL NOTE

ALL CUT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE EXCAVATED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

CONSTRUCTION SEQUENCE

1. EXCAVATE AND STABILIZE INTERCEPTOR AND/OR DIVERSION DITCHES.
2. PERFORM PHASE 1 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
3. PERFORM PHASE 2 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
4. PERFORM FINAL PHASE OF EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING. STABILIZE DITCHES. CONSTRUCT DITCH CHECKS, DIVERSION DITCHES, SEDIMENT BASINS, OR OTHER EROSION CONTROL DEVICES AS REQUIRED.

EMBANKMENT



GENERAL NOTE

ALL EMBANKMENT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE CONSTRUCTED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

CONSTRUCTION SEQUENCE

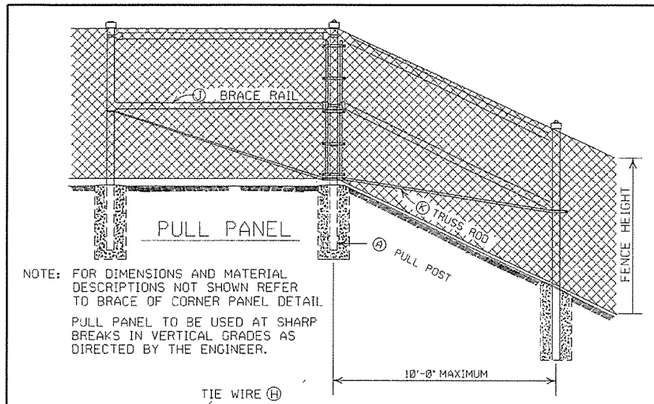
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
3. PLACE PHASE 2 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
4. PLACE FINAL PHASE OF EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PLACE DIVERSION DITCHES AND SLOPE DRAINS AND MAINTAIN UNTIL ENTIRE SLOPE IS STABILIZED.

DATE	REVISION	FILMED
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94

ARKANSAS STATE HIGHWAY COMMISSION

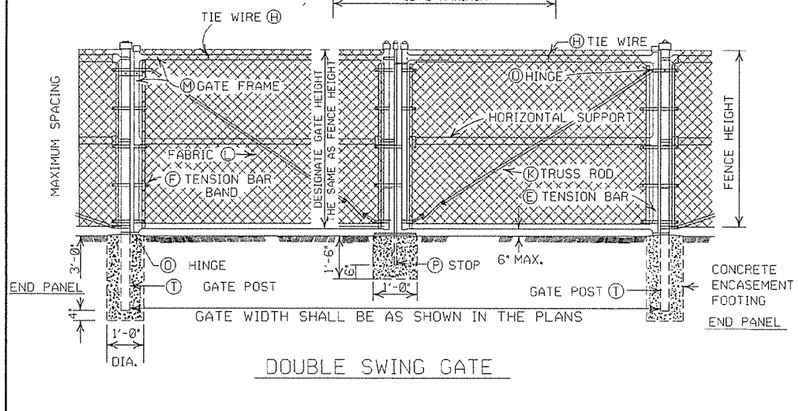
TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3



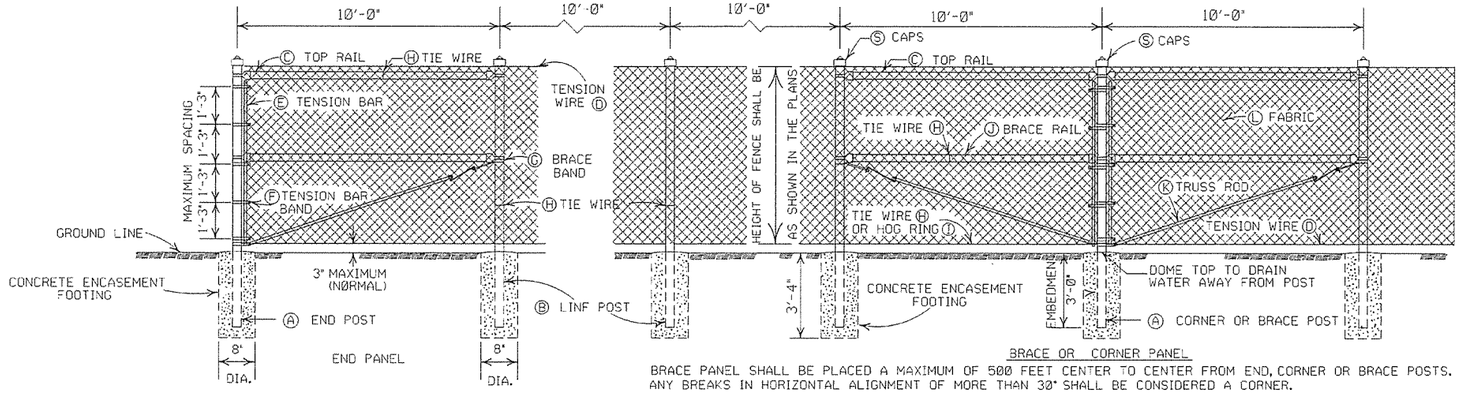
NOTE: FOR DIMENSIONS AND MATERIAL DESCRIPTIONS NOT SHOWN REFER TO BRACE OF CORNER PANEL DETAIL.

PULL PANEL TO BE USED AT SHARP BREAKS IN VERTICAL GRADES AS DIRECTED BY THE ENGINEER.



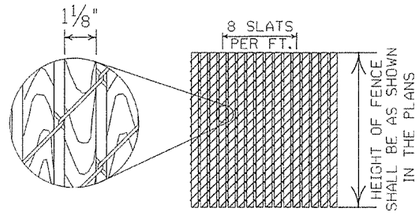
DOUBLE SWING GATE

POST SPACING DETAIL



BRACE OR CORNER PANEL

BRACE PANEL SHALL BE PLACED A MAXIMUM OF 500 FEET CENTER TO CENTER FROM END, CORNER OR BRACE POSTS. ANY BREAKS IN HORIZONTAL ALIGNMENT OF MORE THAN 30° SHALL BE CONSIDERED A CORNER.



1⅛" X ¼" REDWOOD SLATS(LENGTH TO MATCH HEIGHT OF FENCE)

DETAIL OF REDWOOD SLAT INSTALLATION

(WHERE APPLICABLE)

GENERAL NOTES:

(C) CHAIN LINK FENCE BEING PLACED ON PRIVATE PROPERTY SHALL INCLUDE A TOP RAIL. ALL LABOR, MATERIALS, EQUIPMENT, TOOLS, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER LIN. FT. OF CHAIN LINK FENCE.

(D) TENSION WIRE: SHALL BE SECURED TO ALL TERMINAL, PULL, BRACE OR CORNER POSTS WITH TENSION BAR BANDS.

(J) BRACE RAIL: BRACE RAILS SHALL BE PROVIDED AT ALL TERMINAL, PULL, BRACE OR CORNER POSTS HALFWAY BETWEEN THE TOP RAIL AND GROUND LEVEL WHEN TOPRAIL IS SPECIFIED AND TWELVE INCHES (12") DOWN FROM TOP OF FABRIC WHEN TOP TENSION WIRE IS SPECIFIED. BRACE RAIL SHALL EXTEND FROM SUCH POST TO THE FIRST ADJACENT LINE POST.

(L) FABRIC: SHALL CONFORM TO THE SPECIFICATIONS.

(M) GATE FRAMES: SHALL BE CONSTRUCTED OF TUBULAR MEMBERS ASSEMBLED BY USE OF HEAVY PRESSED STEEL, MALLEABLE FITTINGS OR BY WELDING. ALL GATES SHALL HAVE ONE HORIZONTAL SUPPORT EXTENDING THE WIDTH OF THE GATE AT THE MIDPOINTS OF VERTICAL FRAME MEMBERS. THE COMPLETE FRAME SHALL BE RIGID AND HAVE AMPLE STRENGTH TO BE FREE FROM SAG AND TWIST.

(O) HINGES: SHALL BE OF HEAVY PATTERN, OF ADEQUATE STRENGTH FOR GATE, AND WITH LARGE BEARING SURFACES FOR CLAMPING IN POSITION. THE HINGE SHALL BE OF THE PROPER TYPE TO ALLOW FOR THE DESIGNATED DEGREE OF SWING. THE HINGE SHALL NOT TWIST OR TURN UNDER THE ACTION OF THE GATE. THE GATES SHALL BE CAPABLE OF BEING OPENED AND CLOSED EASILY BY ONE PERSON.

(P) LATCHES AND STOPS: SHALL BE PROVIDED FOR ALL GATES. GATES SHALL HAVE A DROP BAR LATCH. LATCHES SHALL BE ARRANGED FOR LOCKING. THE STOP FOR DROP BAR LATCHES SHALL BE SET IN CONCRETE AND ENGAGE THE PLUNGER OF THE BAR LATCH.

(S) CAPS: ALL POSTS, EXCEPT ROLL FORMED POSTS AND "T" POSTS SHALL BE CAPPED OVER THE EXTERIOR OF THE POST, AND SHALL CONFORM TO ASTM F626.

CONCRETE REQUIRED FOR THE EMBEDMENT OF ALL POSTS SHALL NOT BE PAID FOR DIRECTLY BUT SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR CHAIN LINK FENCE.

POSTS SHALL BE SPACED EQUIDISTANT ON A MAXIMUM OF 10' CENTERS.

EXCAVATION FOR POSTS: IN OTHER THAN ROCK SHALL BE OF THE DIMENSIONS INDICATED. IF ROCK IS ENCOUNTERED BEFORE REACHING THE REQUIRED DEPTH, THE EXCAVATION SHALL BE CONTINUED TO THE DEPTH INDICATED OR 1'-6" INTO THE ROCK, WHICHEVER IS LESS, AND SHALL BE A MINIMUM OF 8 INCHES IN DIAMETER.

HEIGHT OF FENCE FABRIC	(A) END, PULL CORNER OR BRACE POST	(B) LINE POSTS SIZE	(B) LINE POSTS TIE SPACING	(C) TOP RAIL SIZE	(C) TOP RAIL TIE SPACING	(C) TOP RAIL MIN. LENGTH	(D) TENSION WIRE SIZE	(D) TENSION WIRE TIE SPACING	(E) TENSION BAR SIZE	(E) TENSION BAR LENGTH	(F) TENSION BAR BAND SIZE	(F) TENSION BAR BAND BOLT SIZE	(F) TENSION BAR BAND SPACING	(G) BRACE BAND SIZE	(G) BRACE BAND BOLT SIZE
6' AND LESS	2½" O.D.	2" O.D.	1 TIE EVERY 1'-2" OF FABRIC HEIGHT	1⅝" O.D.	1 TIE EVERY 2'-0"	10'-0"	7 GAUGE COIL SPRING WIRE	1 TIE EVERY 1'-0"	MIN. OF ⅜" X ¾"	MIN. OF 2" LESS THAN FABRIC HEIGHT	MIN. OF ¾" X 0.074	⅝" X 1½"	1 BAND AT TOP AND BOTTOM 15" MAX. INTERVAL BETWEEN BANDS	MIN. OF ¾" X 0.105	⅝" X 1¼"
OVER 6' TO 12' INCL.	3 " O.D.	2½" O.D.													

HEIGHT OF FENCE FABRIC	(H) TIE WIRE	(I) HOG RING	(J) BRACE RAIL SIZE	(J) BRACE RAIL TIE SPACING	(K) TRUSS ROD	(L) FABRIC SIZE	(L) FABRIC MESH	(L) FABRIC SELVAGE	(M) GATE FRAME SIZE	(M) GATE FRAME TIE SPACING	(N) HORIZONTAL SUPPORT SIZE	(N) HORIZONTAL SUPPORT TIE SPACING	(O) HINGE TYPE 180° SWING	(T) GATE POST GATE WIDTH 12' AND LESS	(T) GATE POST GATE WIDTH OVER 12' TO 24' INCL.
6' AND LESS	MIN. OF 12 GA. STEEL OR 9 GA. ALUM.	SAME GAUGE AS FABRIC	1⅝" O.D.	1 TIE EVERY 2'-0"	MIN. OF ⅜" ROUND WITH TIGHTNERS AND FITTINGS	9 GA.	2"	KNUCK -ING AND/OR TWIST -ING	2" O.D.	1 TIE EVERY 1'-0"	2" O.D.	1 TIE EVERY 1'-0"	OFFSET	3" O.D.	4" O.D.
OVER 6' TO 12' INCL.														4" O.D.	

NOTE: POST SIZES SHOWN ARE FOR STEEL. WHERE ALUMINUM IS PROVIDED, LINE POSTS SHALL HAVE AN OUT SIDE DIAMETER OF 2½" FOR FENCE HEIGHT OF 6' AND LESS, AN OUTSIDE DIAMETER OF 3" FOR FENCE HEIGHT OF 6' TO 12'. END, PULL, CORNER OR BRACE POSTS SHALL HAVE AN OUTSIDE DIAMETER OF 3" FOR FENCE HEIGHT OF 6' AND LESS; AN OUTSIDE DIAMETER OF 3½" FOR FENCE HEIGHTS OF 6' TO 12'. GATE POSTS WHERE GATE WIDTH IS 12' AND LESS SHALL HAVE AN OUTSIDE DIAMETER OF 3½" FOR FENCE HEIGHT OF 6' AND LESS. ALUMINUM TENSION WIRE SHALL BE 0.192" IN DIAMETER. MINIMUM THICKNESS OF MATERIAL FROM WHICH EXPANSION SLEEVES SHALL BE MADE WILL BE 0.078". POSTS AND RAILS MAY HAVE ANY CROSS-SECTIONAL SHAPE THAT WILL MEET THE SPECIFICATIONS.

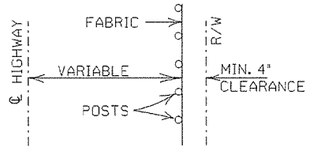
OTHER DETAILS APPLY TO BOTH STEEL AND ALUMINUM FENCE.

ALL MISCELLANEOUS FITTINGS AND HARDWARE SHALL MEET THE REQUIREMENTS AND PRODUCTION TOLERANCES AS SET FORTH IN THE SPECIFICATIONS.
9 GAUGE ALUMINUM WIRE SHALL BE ACCEPTABLE FOR TIEING FABRIC TO TUBULAR AND ROLL FORMED MEMBERS OF STEEL FENCE.

POSTS AND RAILS

SIZE O.D.	GRADE 1 AND ALUMINUM ALLOY O.D. INCHES	WALL THICKNESS	LBS. PER LINEAR FT. STEEL	LBS. PER LINEAR FT. ALUMINUM	GRADE 2 O.D. INCHES	WALL THICKNESS	LBS. PER LINEAR FT.
1⅝	1.660	0.140	2.27	0.786	1.660	0.111	1.84
2	1.900	0.145	2.72	0.940	1.900	0.122	2.28
2½	2.375	0.154	3.65	1.264	2.375	0.130	3.11
3	2.875	0.203	5.79	2.004	2.875	0.162	4.64
3½	3.500	0.216	7.58	2.621	3.500	0.160	5.71
4	4.000	0.226	9.11	3.151	4.000	0.160	6.56

TOLERANCES ON DIMENSIONS AND WEIGHTS ACCORDING TO AASHTO M 181



INSTALLATION MAY BE MODIFIED AS SHOWN IN THE PLANS

TYPICAL INSTALLATION DIAGRAM

DATE	REVISION	FILMED
11-17-10	REVISED TRUSS ROD	
12-10-09	REVISED POSTS & RAILS TABLE	
5-21-09	ADDED TABLE & GEN. NOTE (C)	
8-22-02	REVISED NOTES, REMOVED TABLE, & REMOVED FENCE ALTERNATE	
4-3-97	REVISED BRACE RAIL NOTE	
10-18-96	REVISED AASHTO & ASTM REF.	
11-3-94	REVISED NOTE (L)	
10-1-92	DELETED ALTERNATE POST	10-1-92
8-15-91	DELETED ROLL FORMED POST DETAIL & ADDED NOTE	8-15-91 8-15-91
11-30-89	DELETED CLASS CONCRETE	11-30-89
11-17-88	REVISED O.D. SIZES	668-11-17-88
10-30-87	GENERAL REVISIONS	548-10-30-87
4-20-79	REVISED TOP RAIL & TENSION WIRE	695-4-20-79
10-2-72	REVISED AND REDRAWN	530-10-2-72

ARKANSAS STATE HIGHWAY COMMISSION

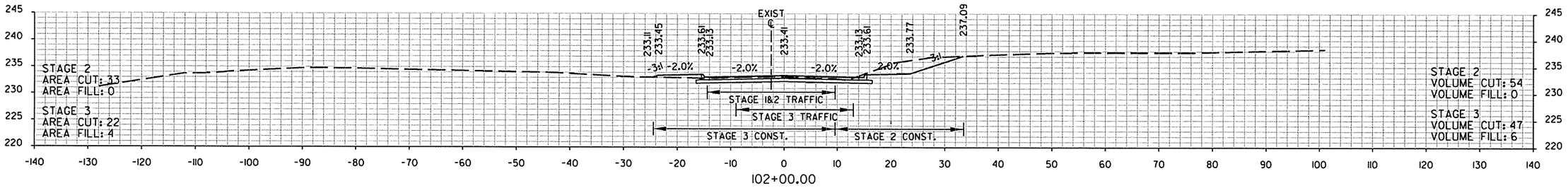
CHAIN LINK FENCE

STANDARD DRAWING WF-3

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	151	172

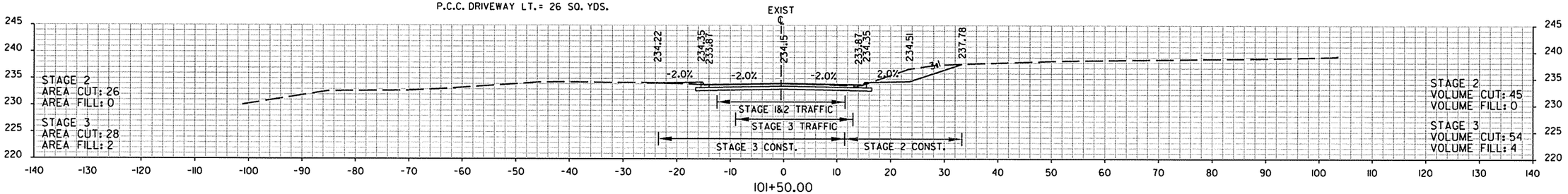
(2) CROSS SECTIONS

STA. 102+27 ℄ CONST. CONSTRUCT
P.C.C. DRIVEWAY LT.= 30 SQ. YDS.



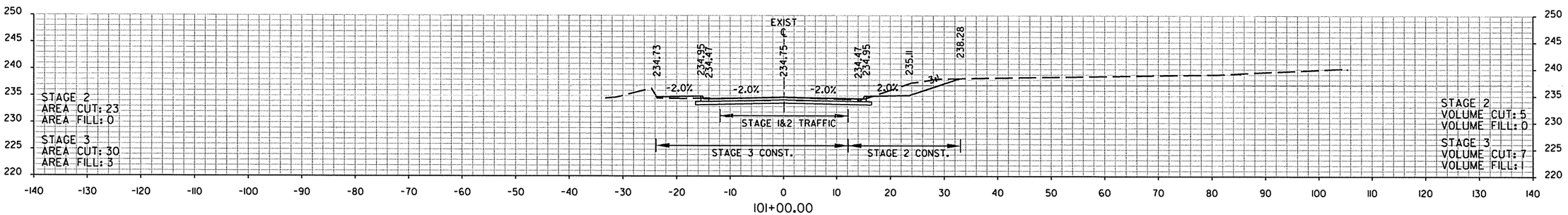
102+00.00

STA. 101+74 ℄ CONST. CONSTRUCT
P.C.C. DRIVEWAY LT.= 26 SQ. YDS.

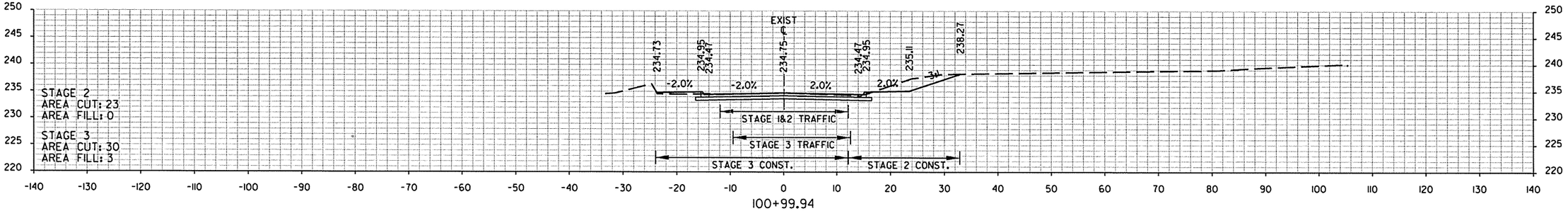


101+50.00

STA. 101+17 ℄ CONST. CONSTRUCT
P.C.C. DRIVEWAY LT.= 25 SQ. YDS.



101+00.00

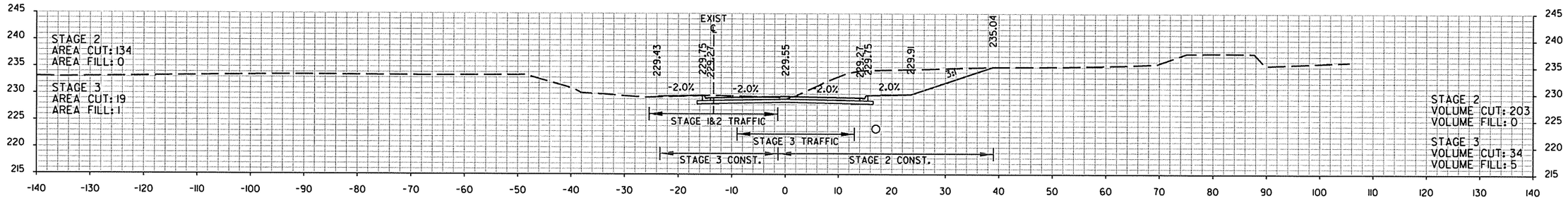


100+99.94

STA. 100+99.94 BEGIN JOB 070240
STA. 100+29.94 BEGIN 70' TRANSITION ℄ CONST.

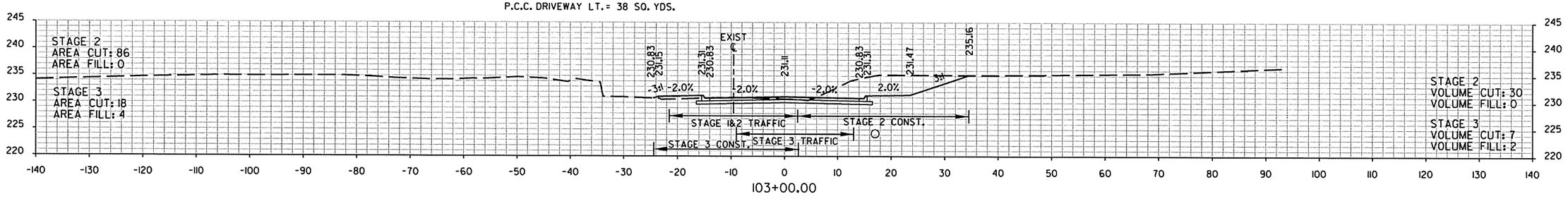
STA. 100+99.94 TO STA. 102+00.00
HWY. 51 RELOC.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	152	172
				(2)	CROSS SECTIONS			

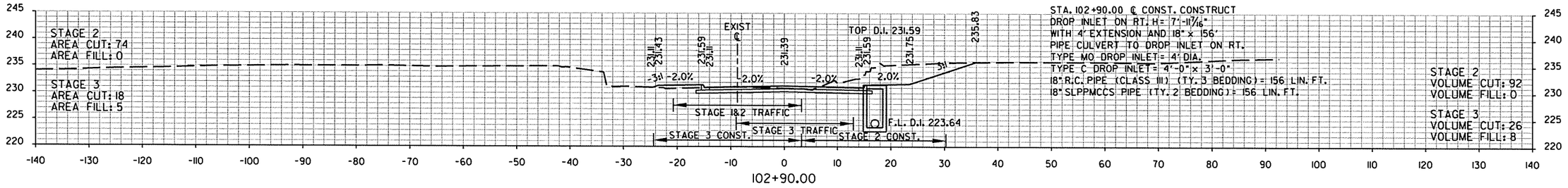


103+50.00

STA. 103+10 ℄ CONST. CONSTRUCT
P.C.C. DRIVEWAY LT. = 38 SQ. YDS.

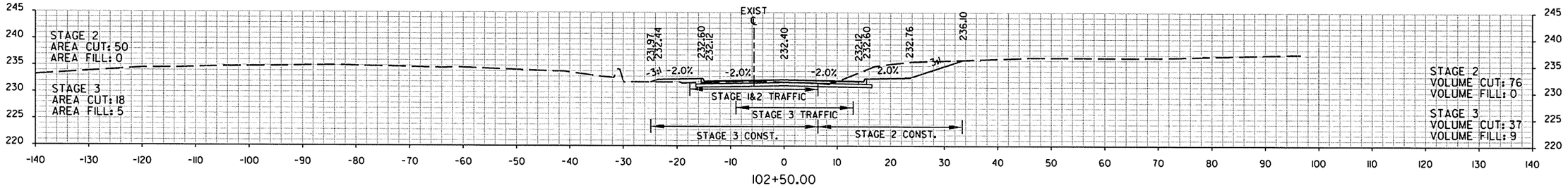


103+00.00



STA. 102+90.00 ℄ CONST. CONSTRUCT
DROP INLET ON RT. H = 7'-11 7/16"
WITH 4' EXTENSION AND 18" x 156'
PIPE CULVERT TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4'-0" x 3'-0"
18" R.C. PIPE (CLASS III) (TY. 3 BEDDING) = 156 LIN. FT.
18" SLPPMCCS PIPE (TY. 2 BEDDING) = 156 LIN. FT.

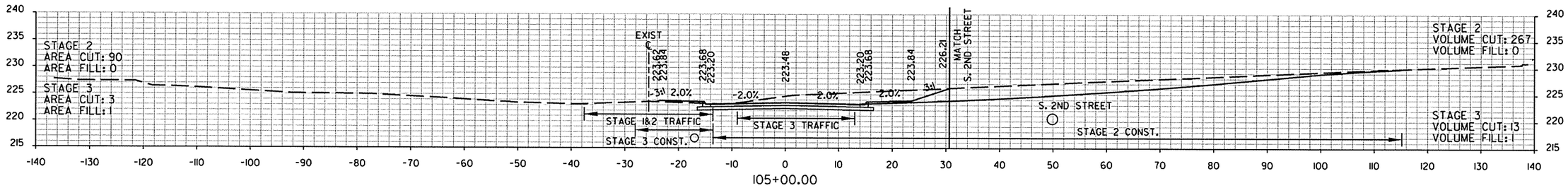
102+90.00

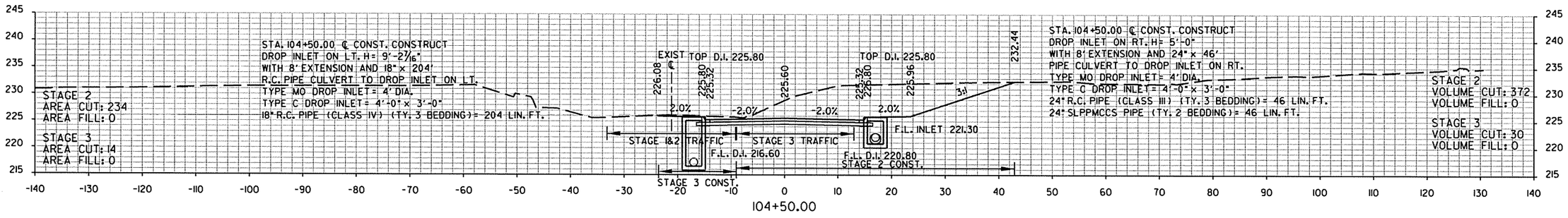


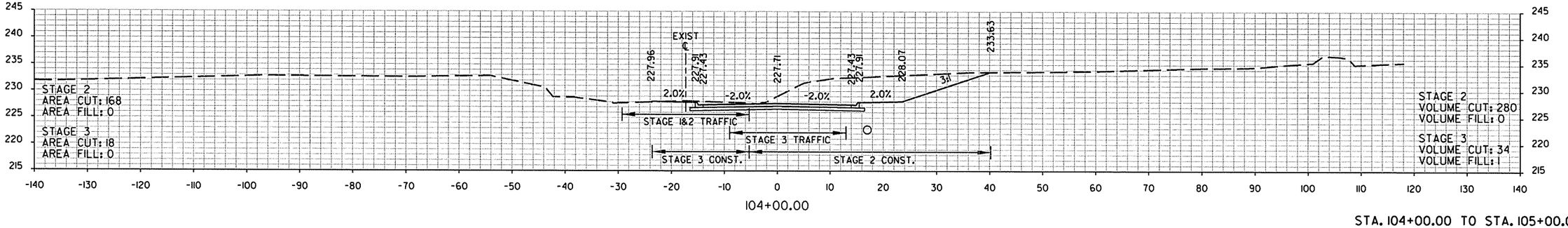
102+50.00

STA. 102+50.00 TO STA. 103+50.00
HWY. 51 RELOC.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	153	172
				(2)	CROSS SECTIONS			



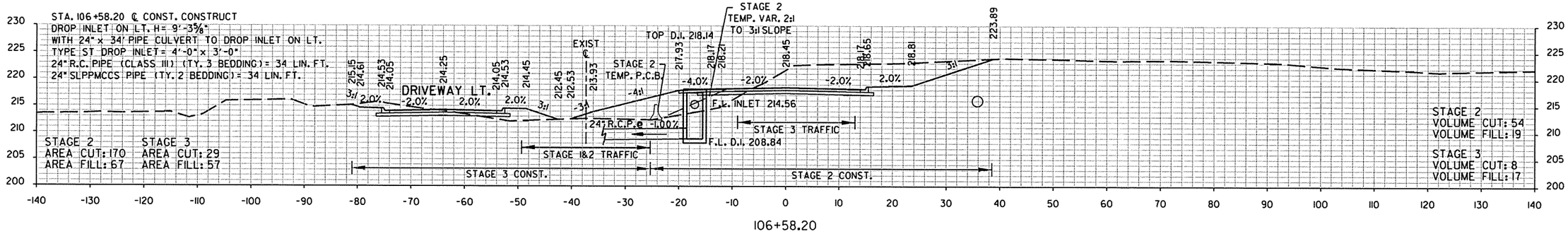


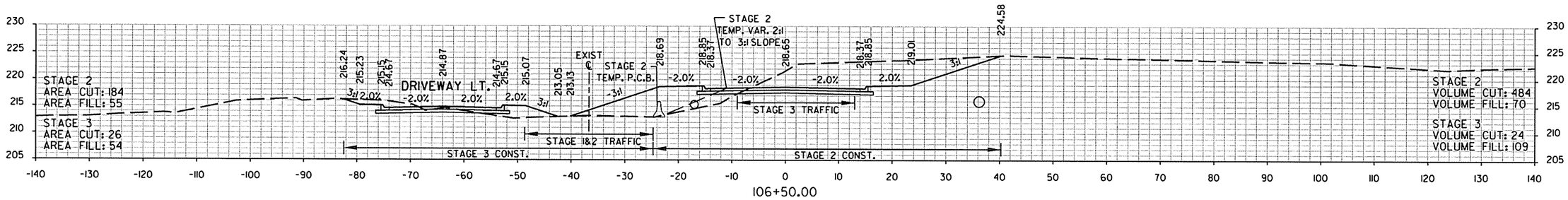


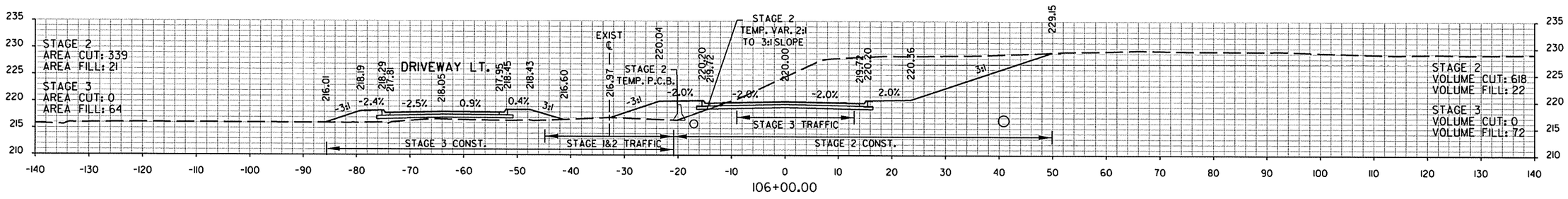
STA. 104+00.00 TO STA. 105+00.00
HWY. 51 RELOC.

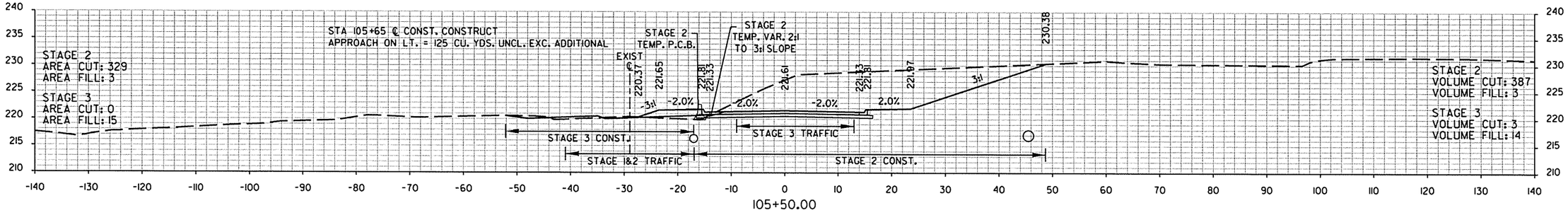
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	154	172

(2) CROSS SECTIONS





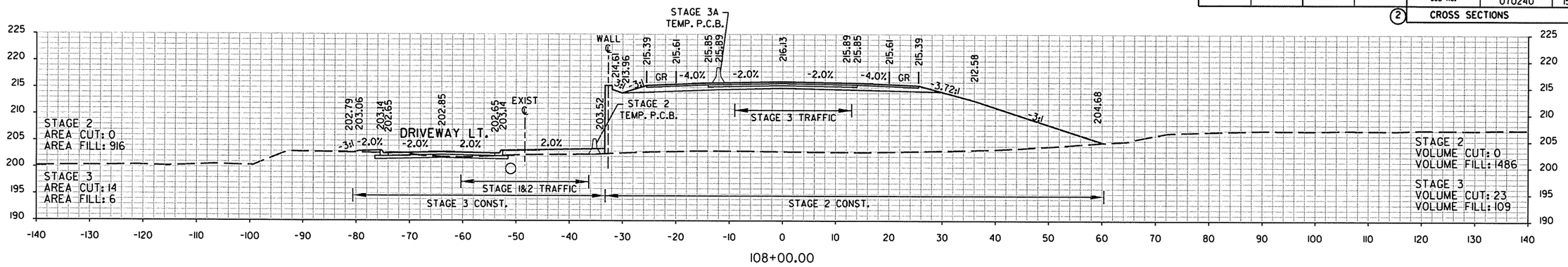




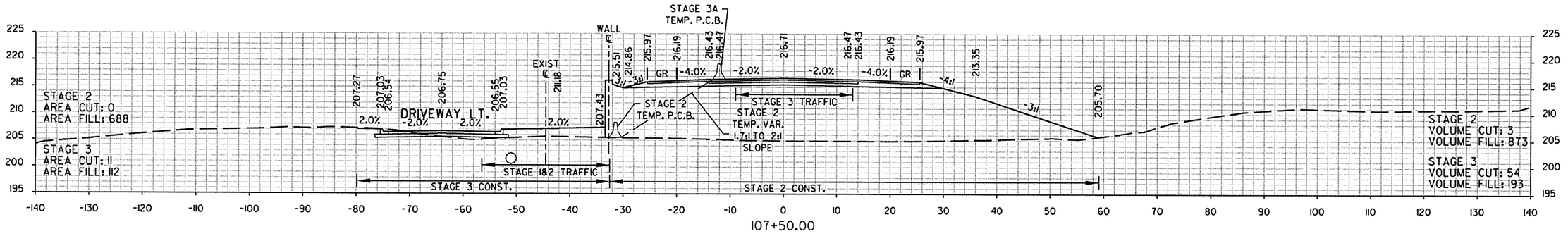
STA. 105+50.00 TO STA. 106+58.20
HWY. 51 RELOC.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	155	172

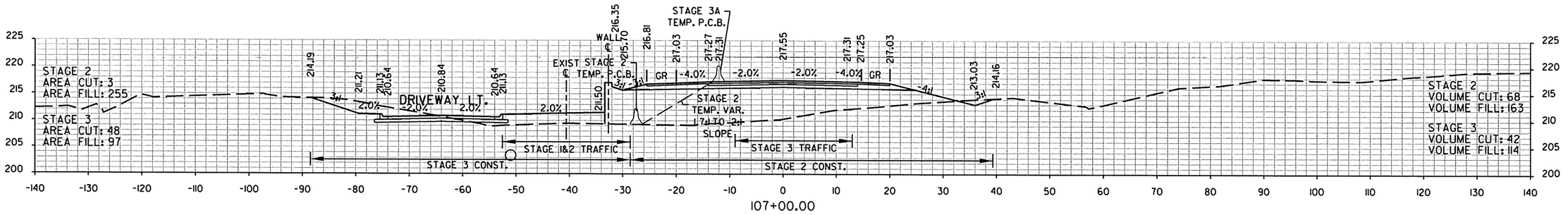
(2) CROSS SECTIONS



108+00.00



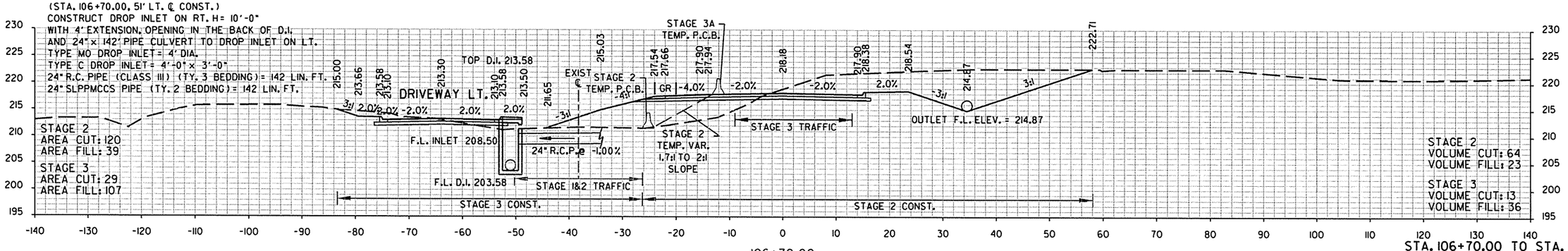
107+50.00



107+00.00

STA. 106+80.00 ℄ CONST. LT. BEGIN RETAINING WALL

STA. 11+51.83 ℄ DRIVEWAY
(STA. 106+70.00, 51' LT. ℄ CONST.)
CONSTRUCT DROP INLET ON RT. H= 10'-0"
WITH 4' EXTENSION, OPENING IN THE BACK OF D.I.
AND 24"x 142' PIPE CULVERT TO DROP INLET ON LT.
TYPE M0 DROP INLET= 4' DIA.
TYPE C DROP INLET= 4'-0"x 3'-0"
24" R.C. PIPE (CLASS III) (TY. 3 BEDDING)= 142 LIN. FT.
24" SLPPMCCS PIPE (TY. 2 BEDDING)= 142 LIN. FT.

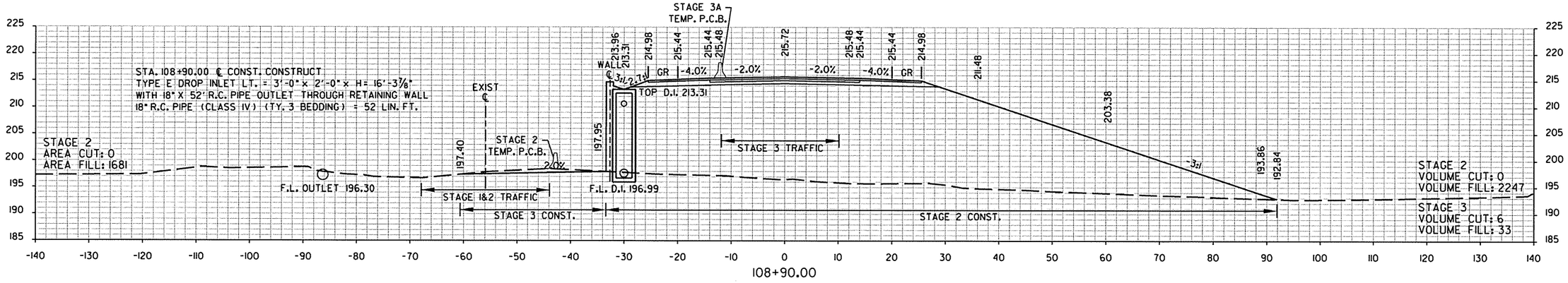


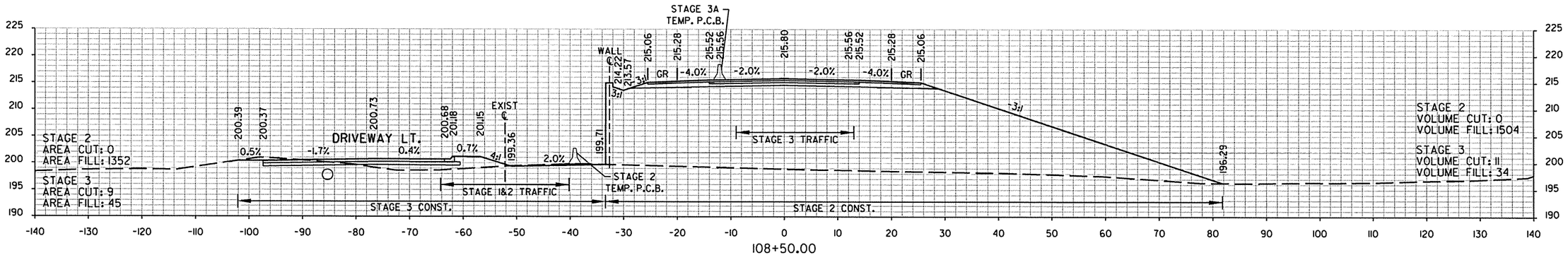
106+70.00

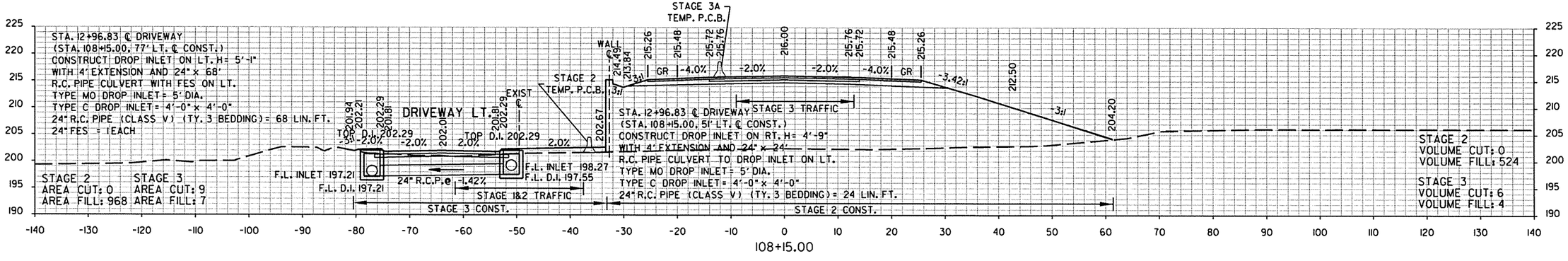
STA. 106+70.00 TO STA. 108+00.00
HWY. 51 RELOC.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	156	172

(2) CROSS SECTIONS







STA. 108+15.00 TO STA. 108+90.00
HWY. 51 RELOC.

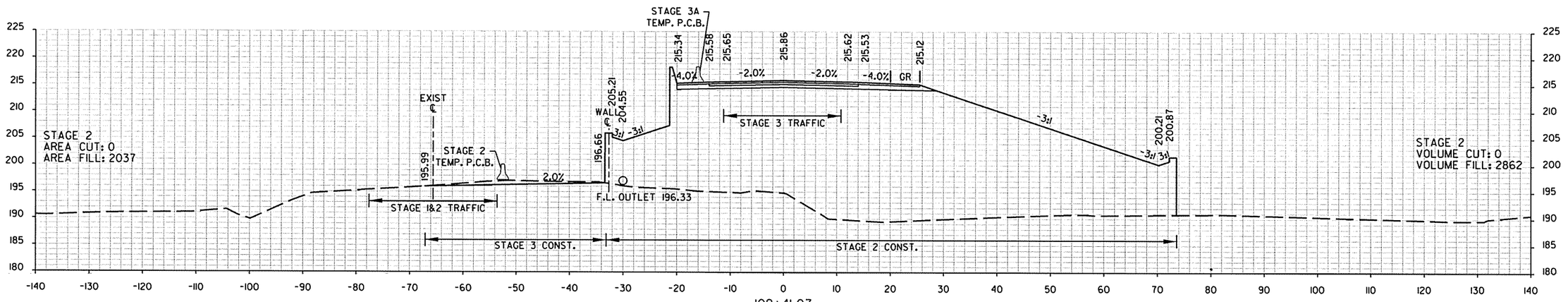
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	157	172
				(2)	CROSS SECTIONS			

STAGE 2
AREA CUT: 0
AREA FILL: 0

STAGE 2
VOLUME CUT: 0
VOLUME FILL: 0

109+61.82 TOE OF SLOPE

STA. 109+45.66 BEGIN BRIDGE ℄ CONST.

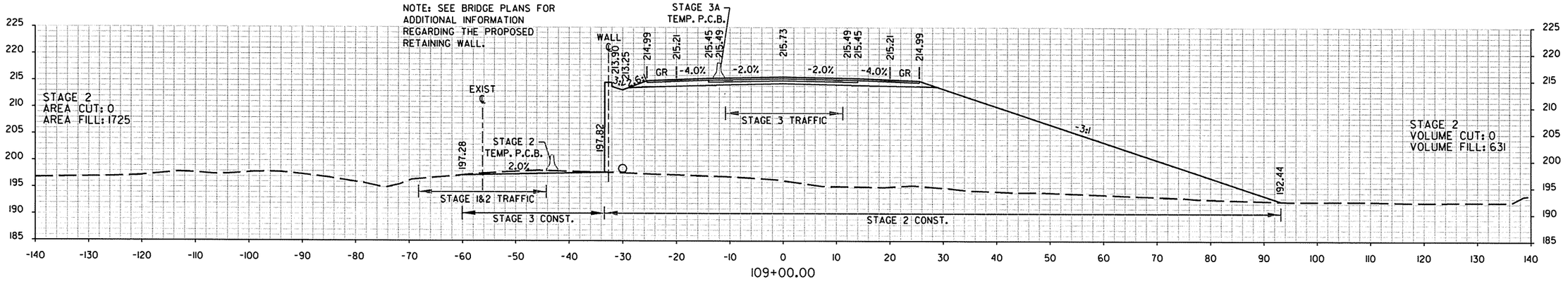


109+41.07

LT. STA. 109+37.33
END V.B. DT. ℮ -23.2%
ELEV. 204.60'

LT. STA. 109+00.00
BEGIN V.B. DT. ℮ -23.2%
ELEV. 213.35'

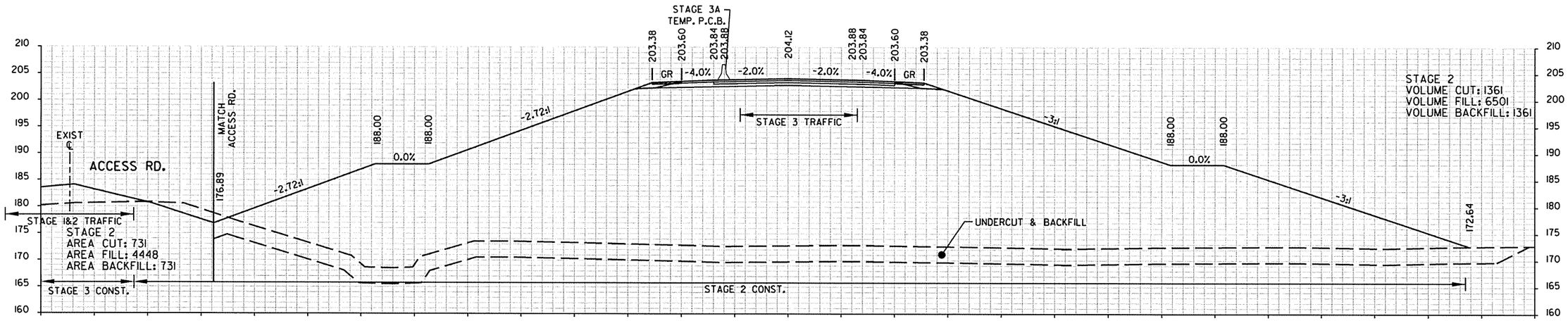
STA. 109+23.30 RT. ℄ CONST. RT. END RETAINING WALL



109+00.00

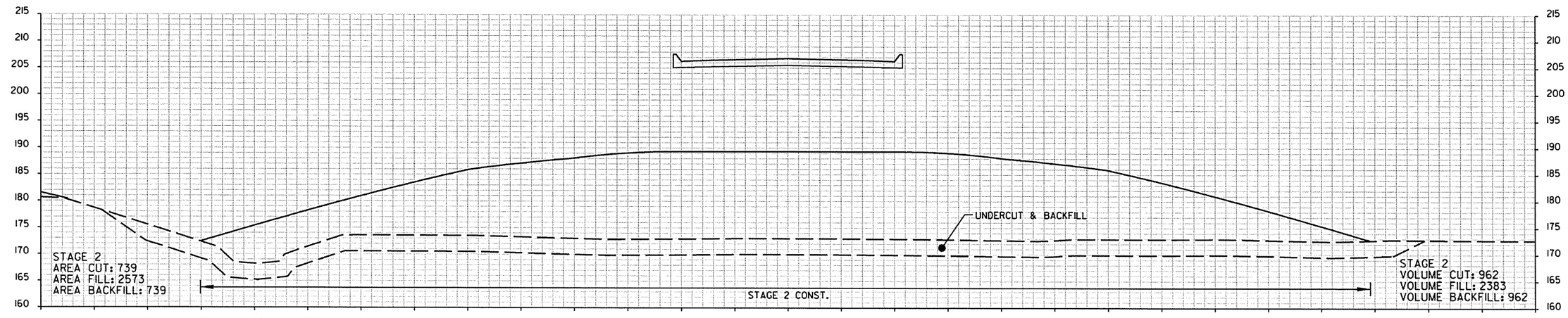
STA. 109+00.00 TO STA. 109+61.82
HWY. 51 RELOC.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	158	172
				(2)	CROSS SECTIONS			



126+00.00

STA. 125+75.09 END BRIDGE ℄ CONST.



125+50.00

124+87.87 TOE OF SLOPE

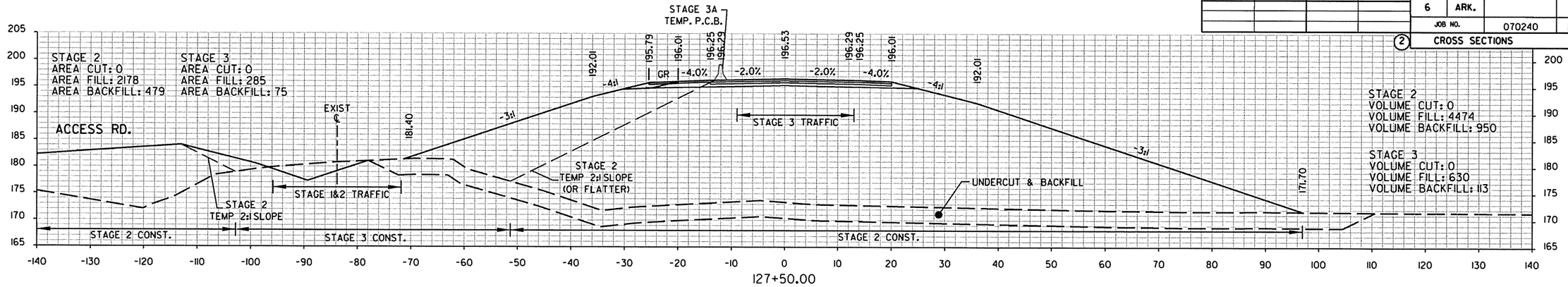
STAGE 2
AREA CUT: 0
AREA FILL: 0
AREA BACKFILL: 0

STAGE 2
VOLUME CUT: 0
VOLUME FILL: 0
VOLUME BACKFILL: 0

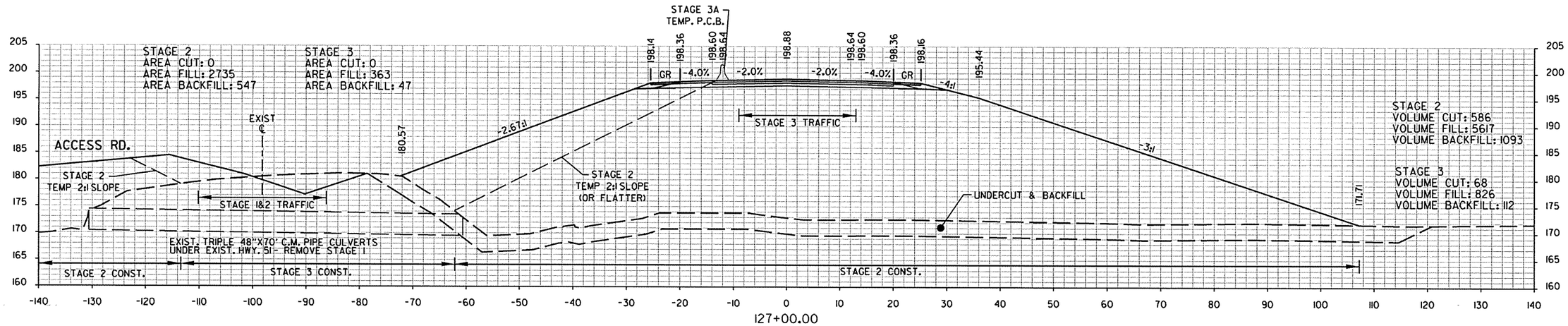
STA. 124+87.87 TO STA. 126+00.00
HWY. 51 RELOC.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	159	172

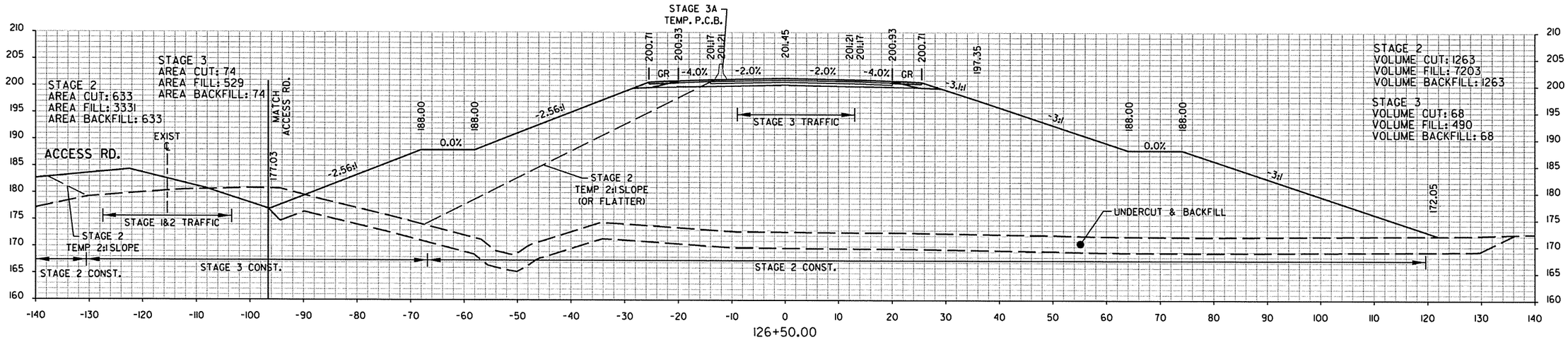
(2) CROSS SECTIONS



127+50.00



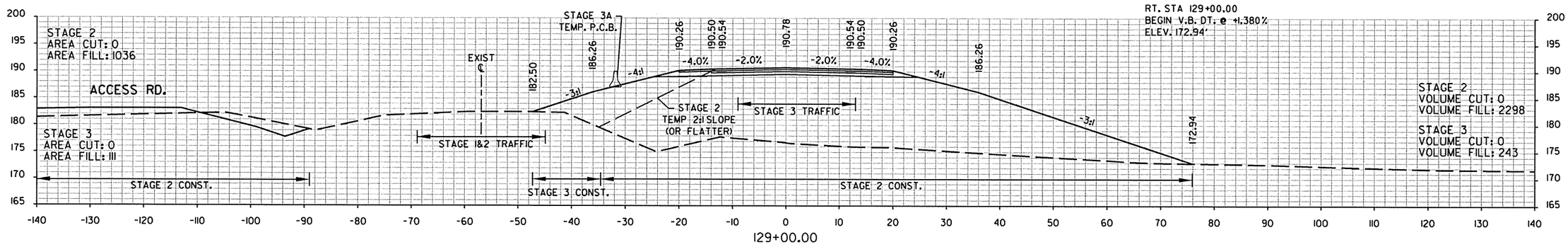
127+00.00

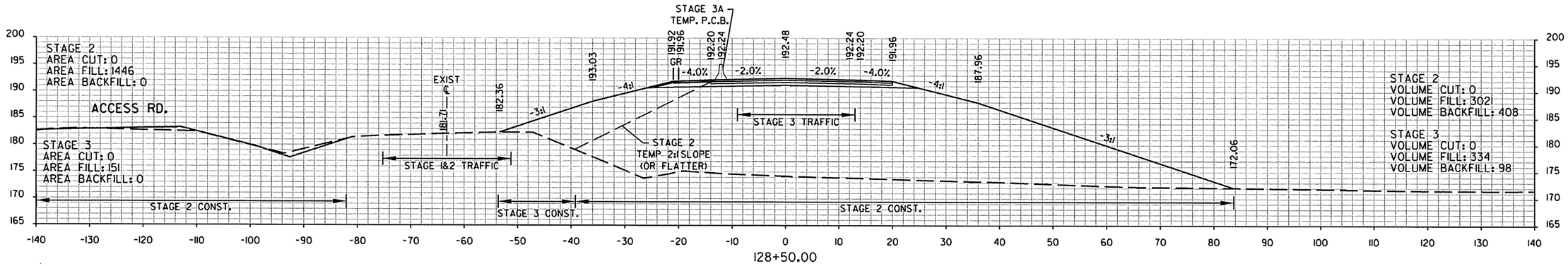


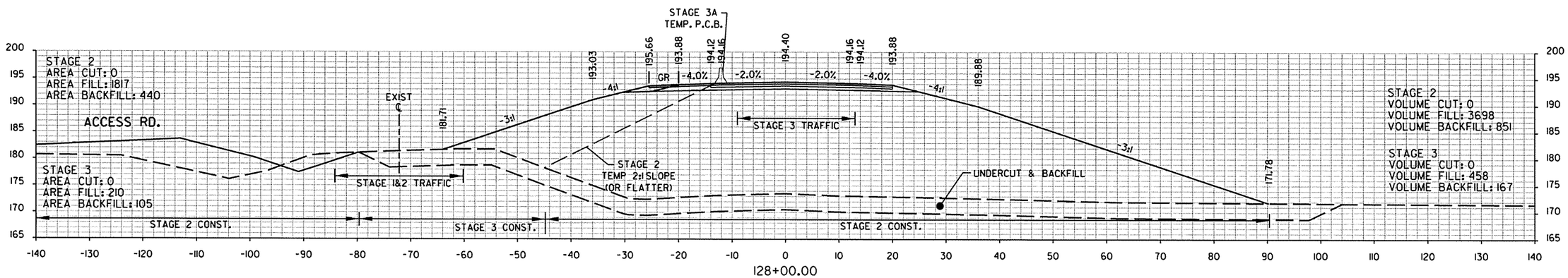
126+50.00

STA. 126+50.00 TO STA. 127+50.00
HWY. 51 RELOC.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	160	172
				(2)	CROSS SECTIONS			



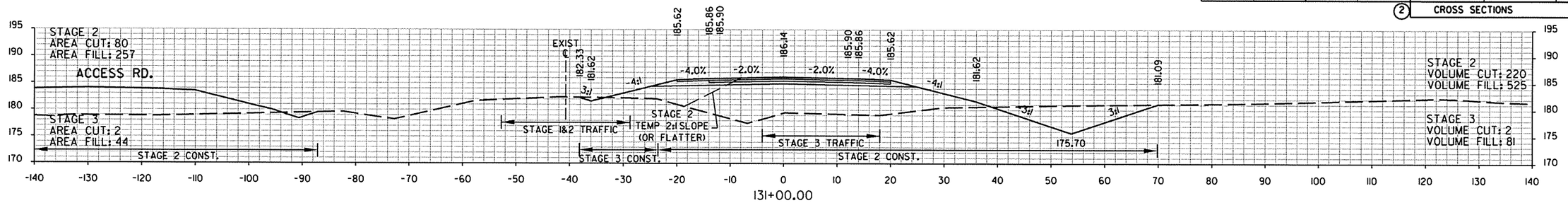


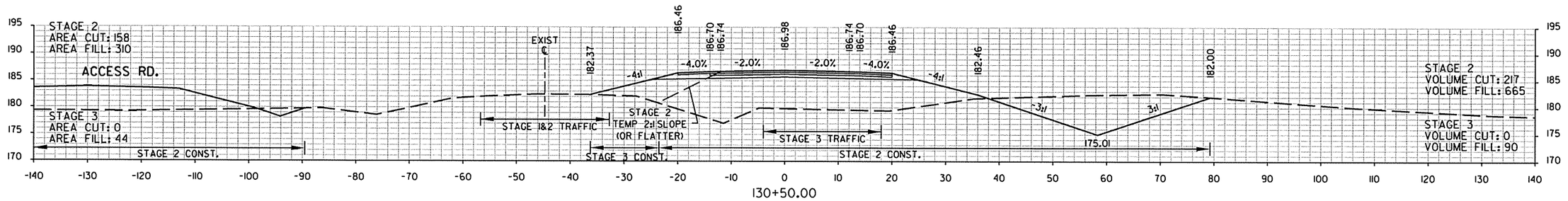


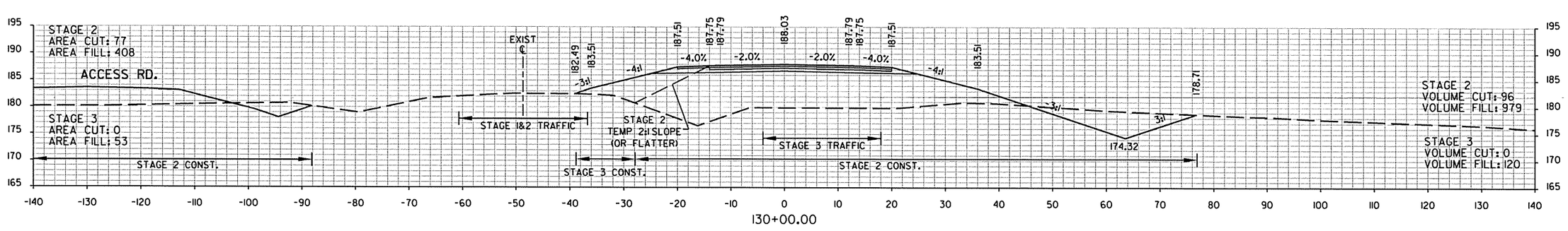
STA. 128+00.00 TO STA. 129+00.00
HWY. 51 RELOC.

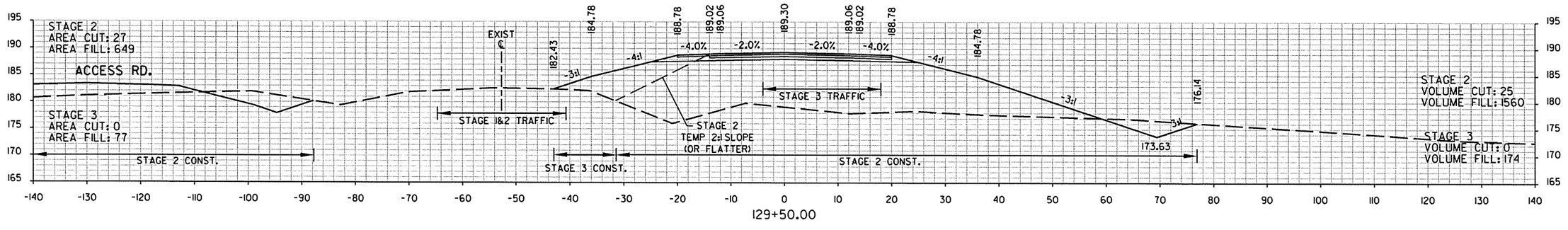
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	161	172

(2) CROSS SECTIONS





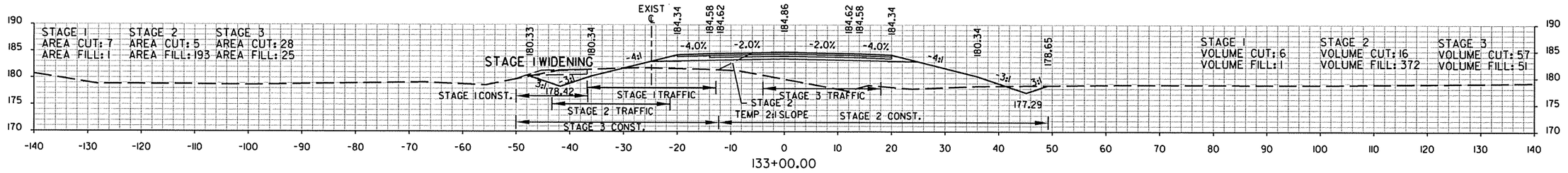


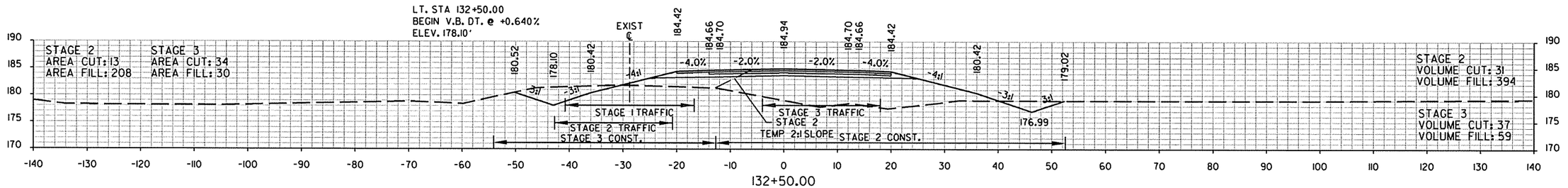


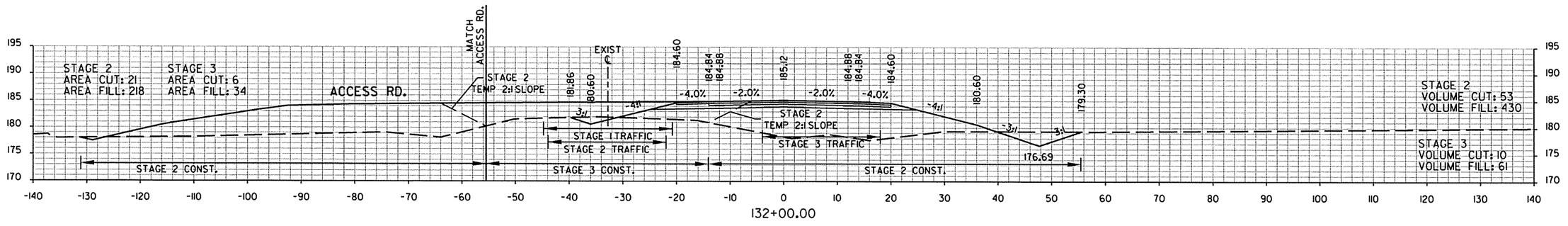
STA. 129+50.00 TO STA. 131+00.00
HWY. 51 RELOC.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	162	172

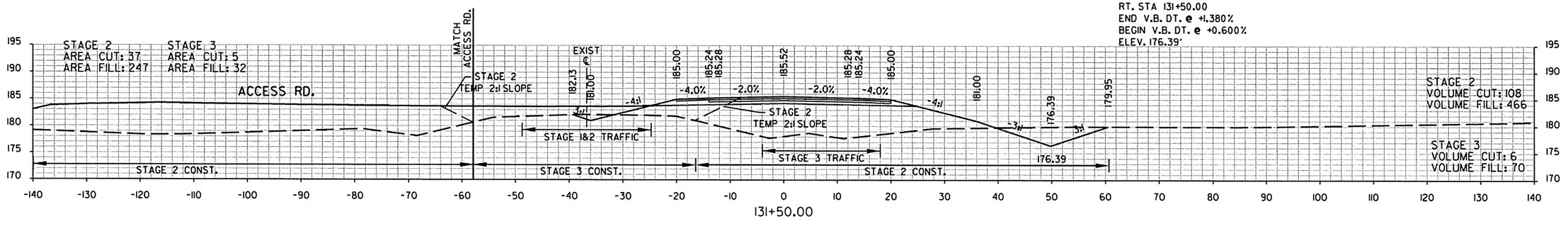
(2) CROSS SECTIONS





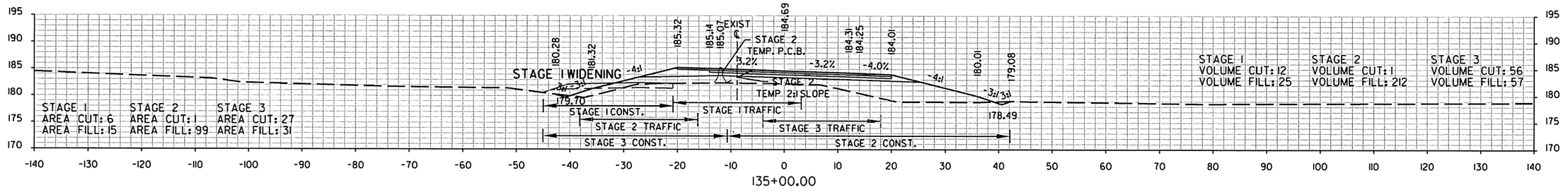


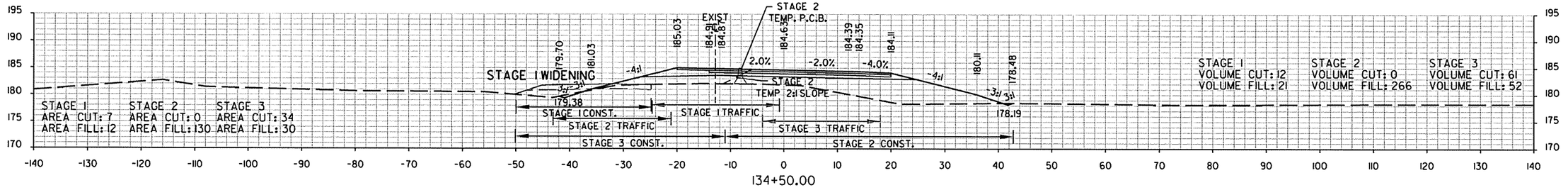
STA. 131+84.79 BEGIN STAGE 1 CONSTRUCTION ℄ CONST.

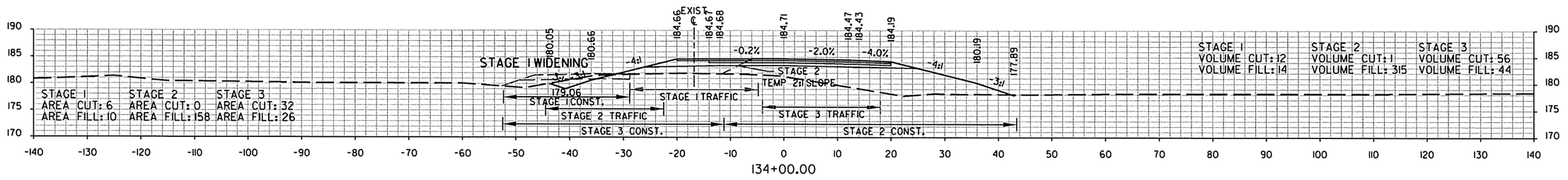


STA. 131+50.00 TO STA. 133+00.00
HWY. 51 RELOC.

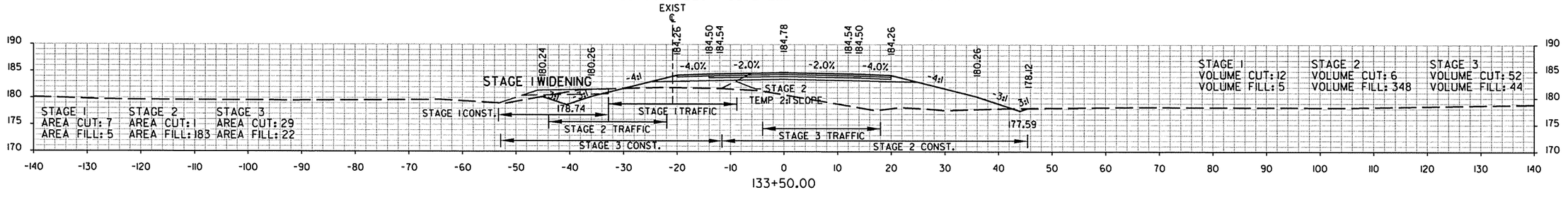
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	163	172
				(2)	CROSS SECTIONS			





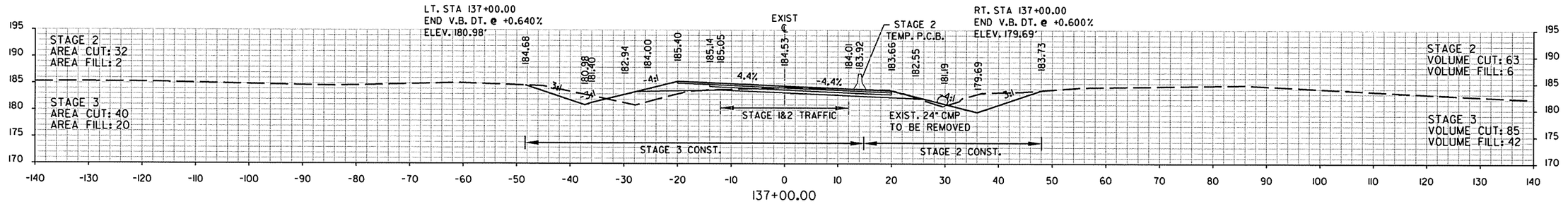


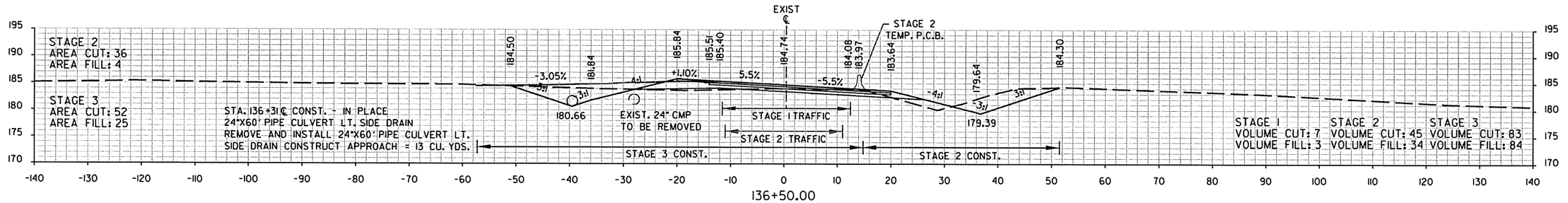
STA. 133+61.36 BEGIN SUPERELEVATION (-0.020 FT./FT.)



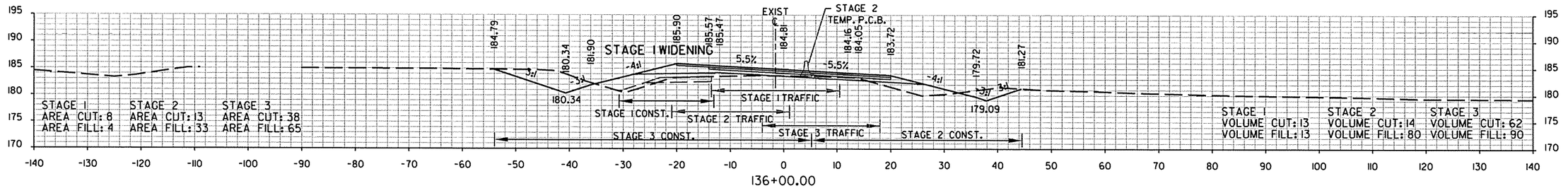
STA. 133+50.00 TO STA. 135+00.00
HWY. 51 RELOC.

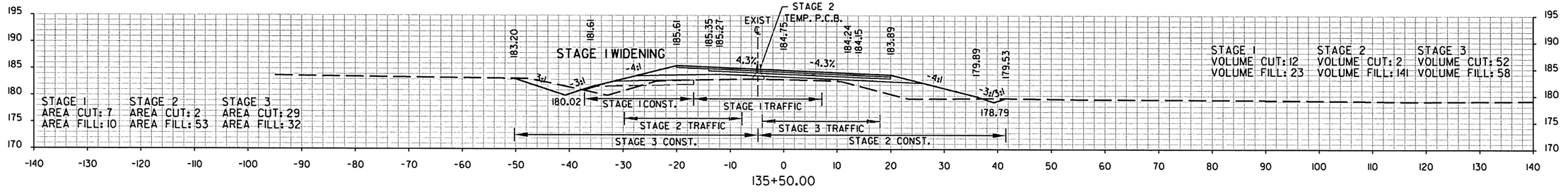
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	164	172
				(2)	CROSS SECTIONS			





STA. 136+41.10 MAX SUPERELEVATION (+0.057 FT./FT.)
STA. 136+11.36 MAX SUPERELEVATION (+0.057 FT./FT.)





STA. 135+50.00 TO STA. 137+00.00
HWY. 51 RELOC.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	165	172

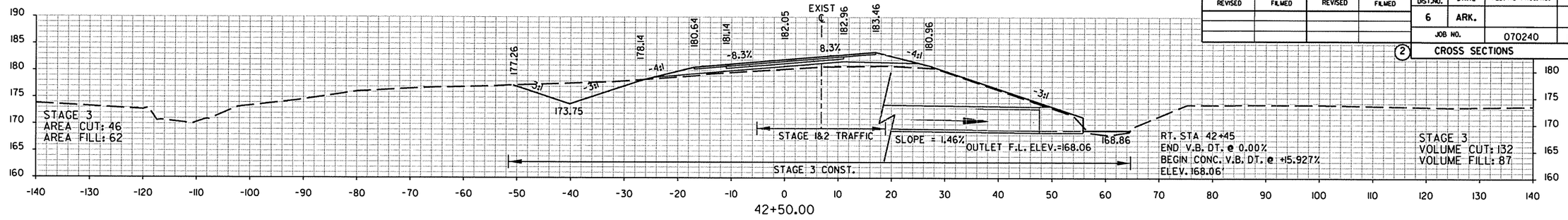
(2) CROSS SECTIONS

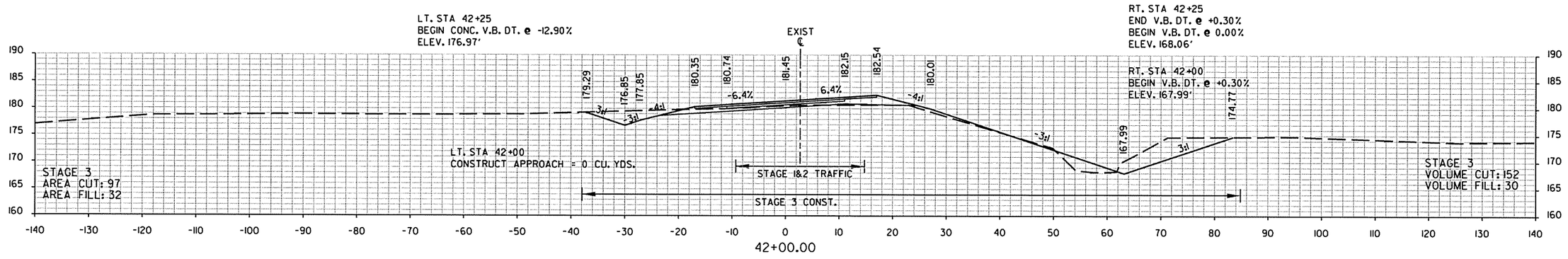
STA. 137+03.60 END JOB 070240
STA. 137+03.60 END STAGE I CONSTRUCTION ℄ CONST.

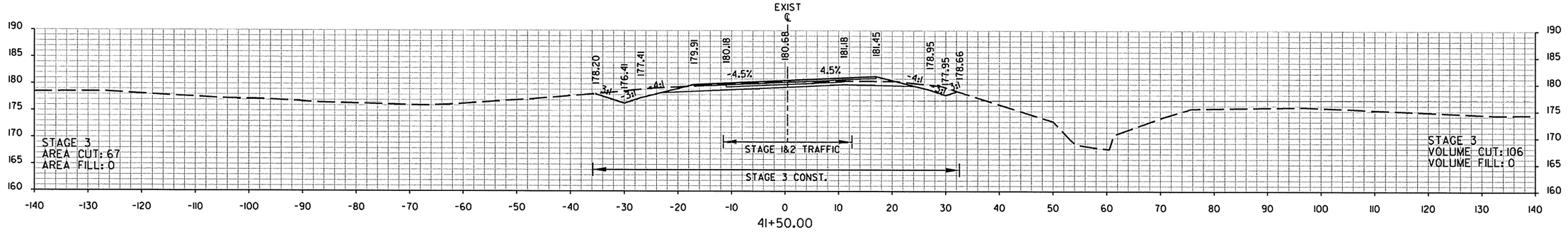
STA. 137+50.00 TO STA. 137+50.00
HWY. 51 RELOC.

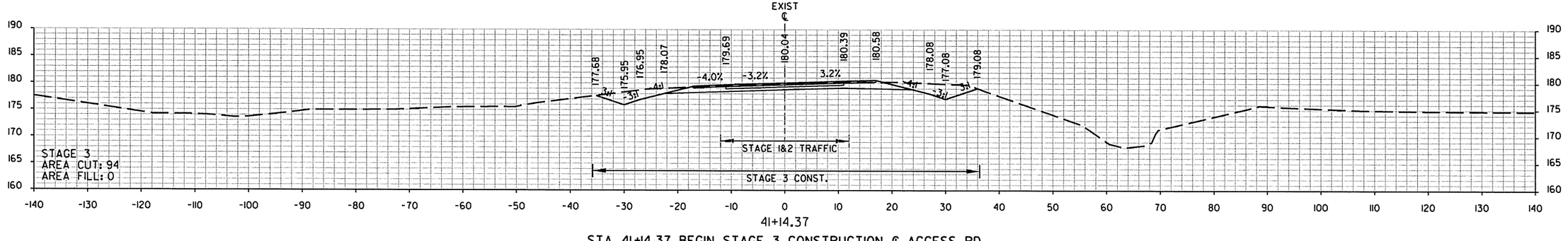
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	166	172

(2) CROSS SECTIONS









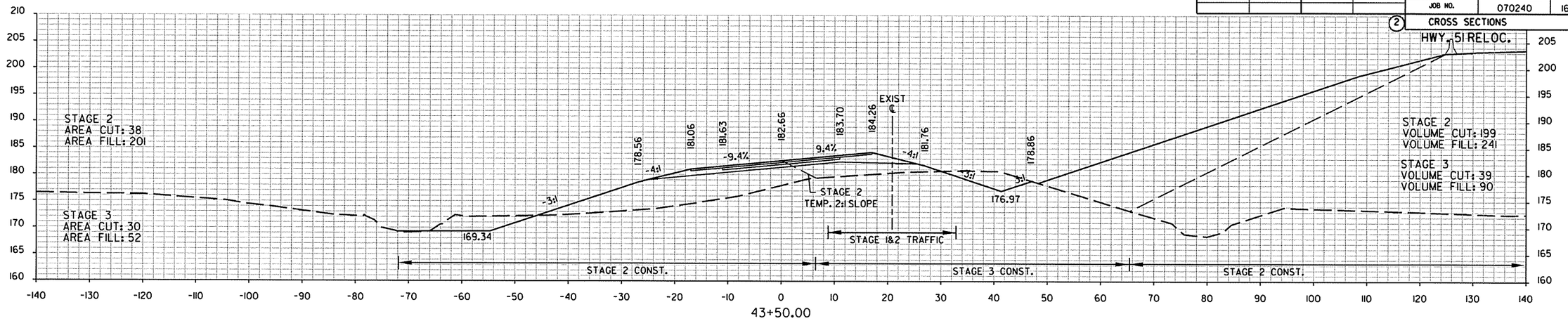
STA. 41+14.37 BEGIN STAGE 3 CONSTRUCTION ℄ ACCESS RD.
MATCH SUPERELEVATION

STA. 41+14.37 BEGIN CONSTRUCTION ℄ ACCESS RD.

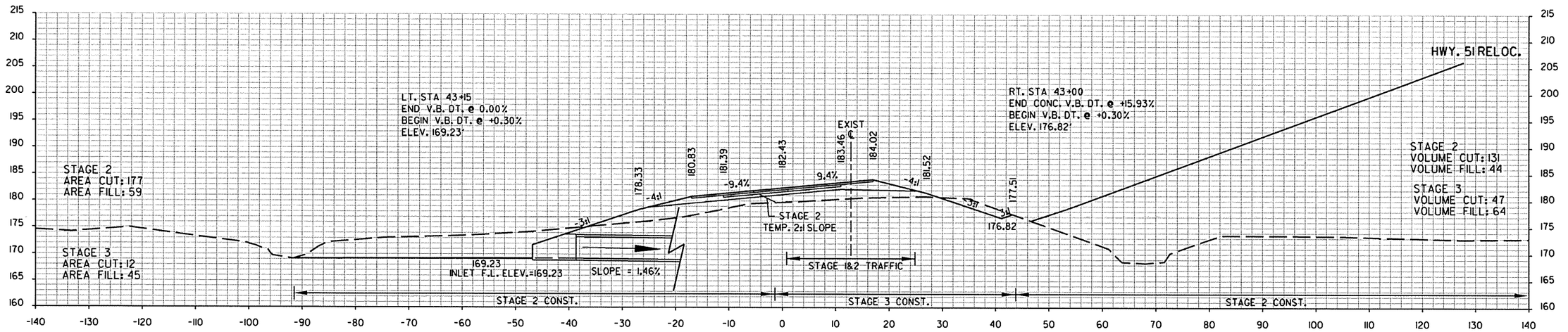
STA. 41+14.37 TO STA. 42+50.00
ACCESS ROAD

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	167	172

(2) CROSS SECTIONS

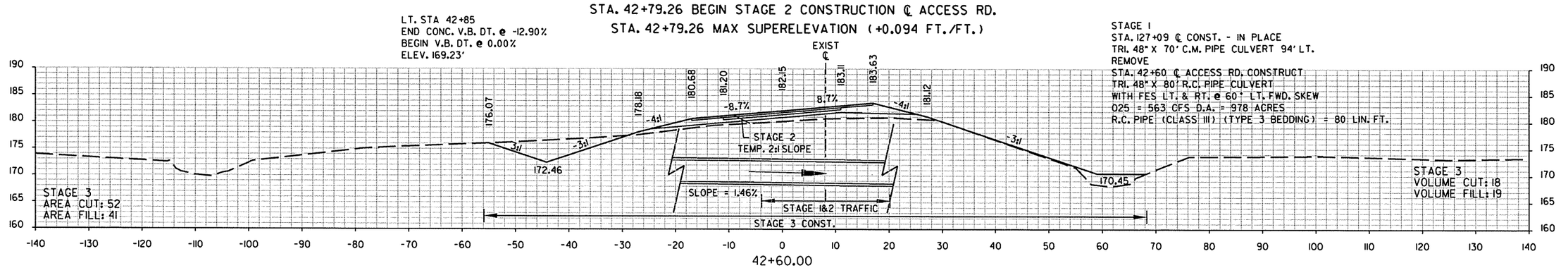


43+50.00



43+00.00

STA. 42+79.26 BEGIN STAGE 2 CONSTRUCTION ℄ ACCESS RD.
STA. 42+79.26 MAX SUPERELEVATION (+0.094 FT./FT.)

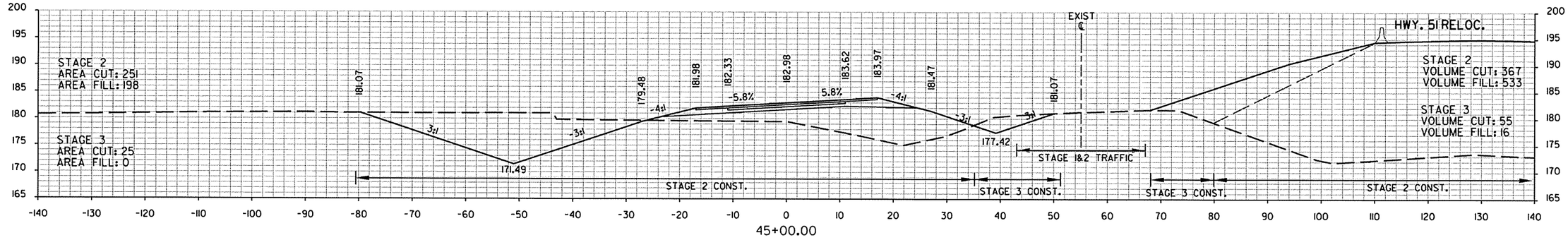


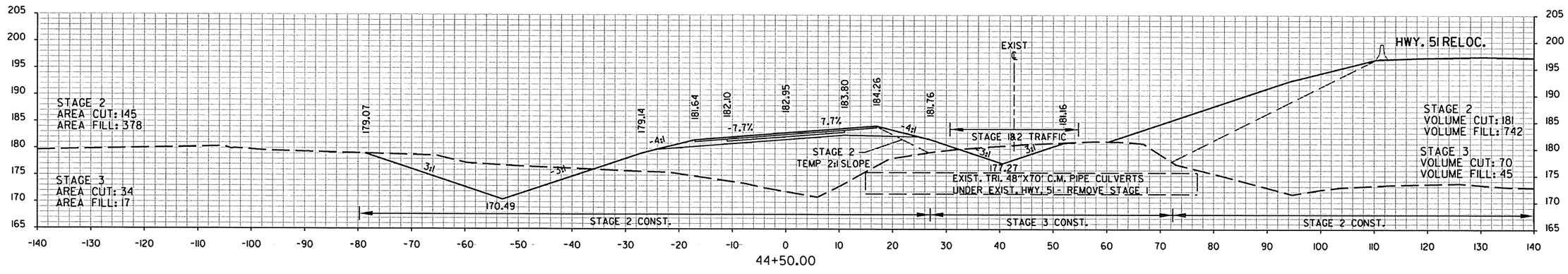
42+60.00

STA. 42+60.00 TO STA. 43+50.00
ACCESS ROAD

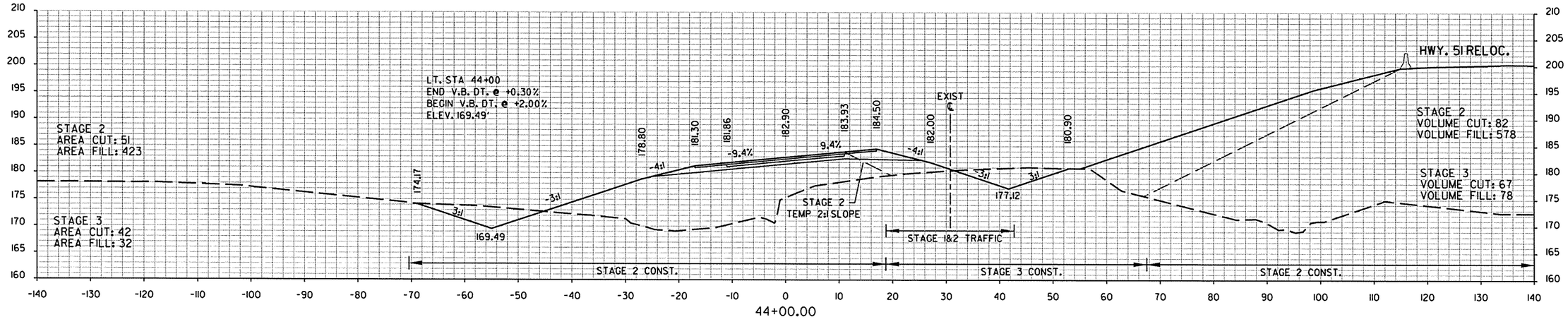
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	168	172

(2) CROSS SECTIONS



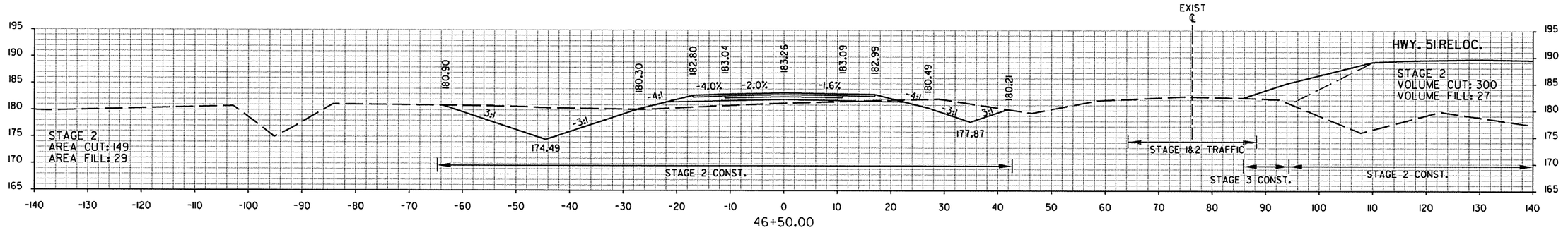


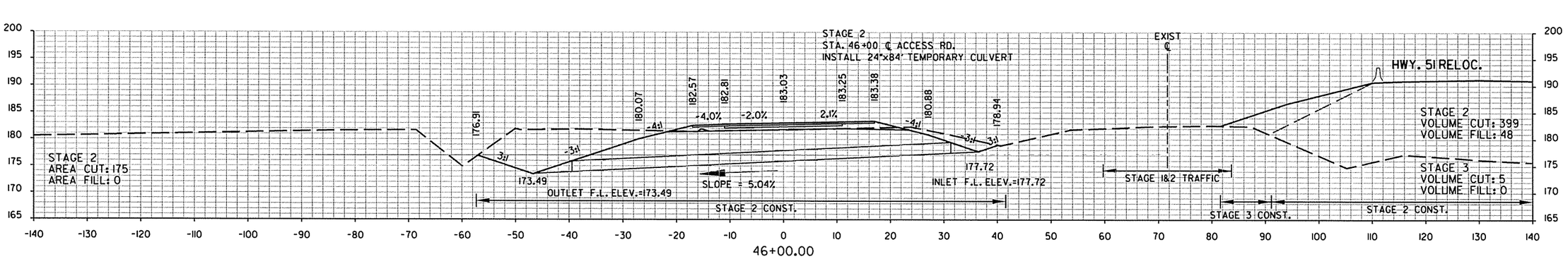
STA. 44+05.52 MAX SUPERELEVATION (+0.094 FT./FT.)



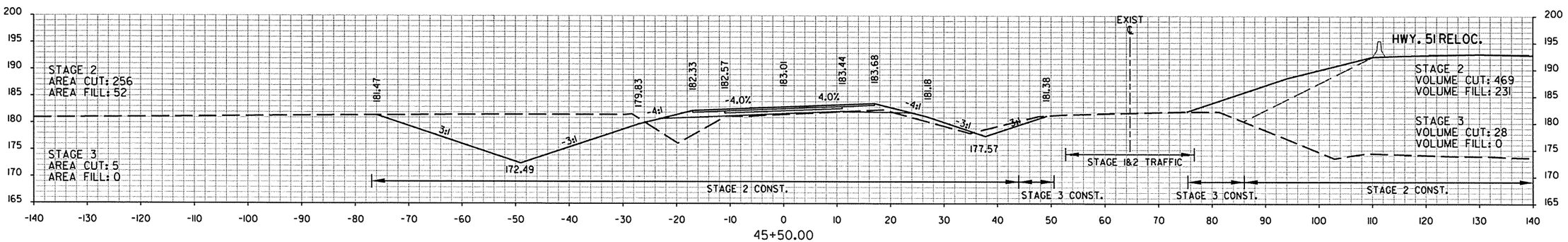
STA. 44+00.00 TO STA. 45+00.00
ACCESS ROAD

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	169	172
				(2)	CROSS SECTIONS			





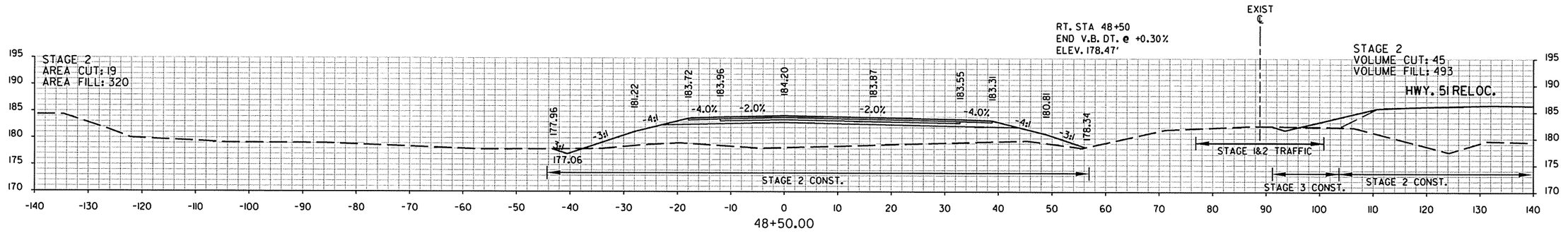
STA. 45+75 END STAGE 3 CONSTRUCTION ℄ ACCESS RD.

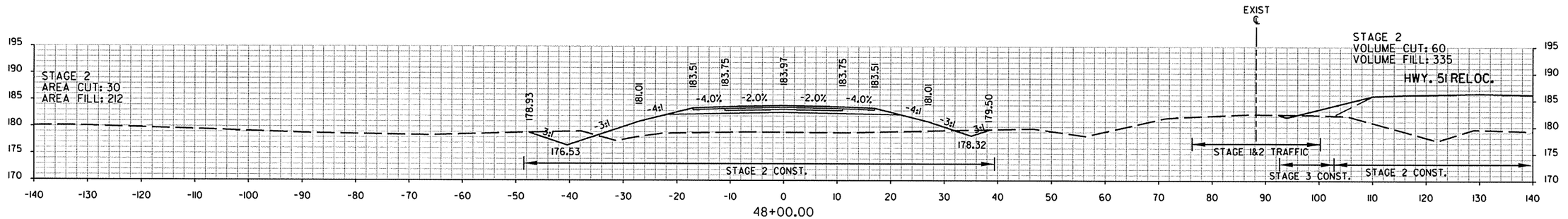


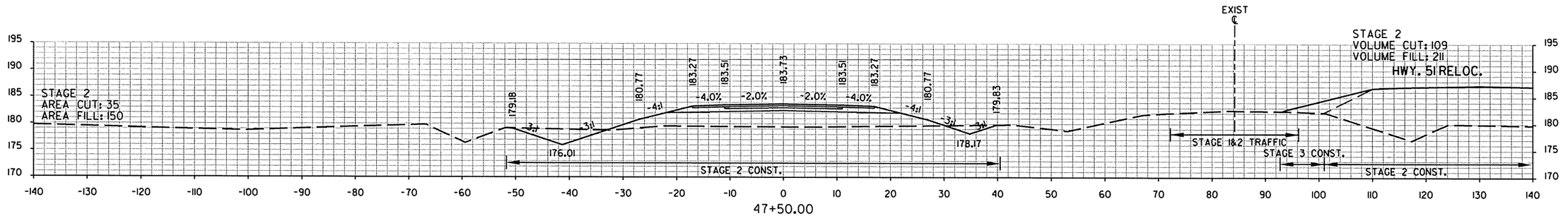
STA. 45+50.00 TO STA. 46+50.00
ACCESS ROAD

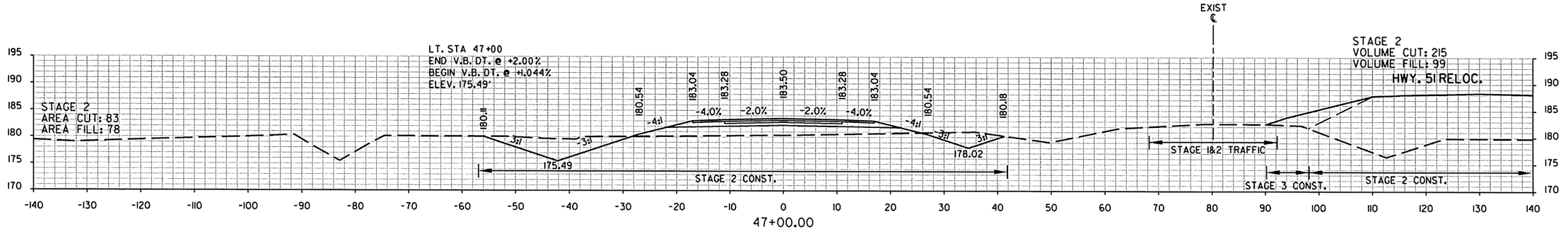
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	170	172

(2) CROSS SECTIONS





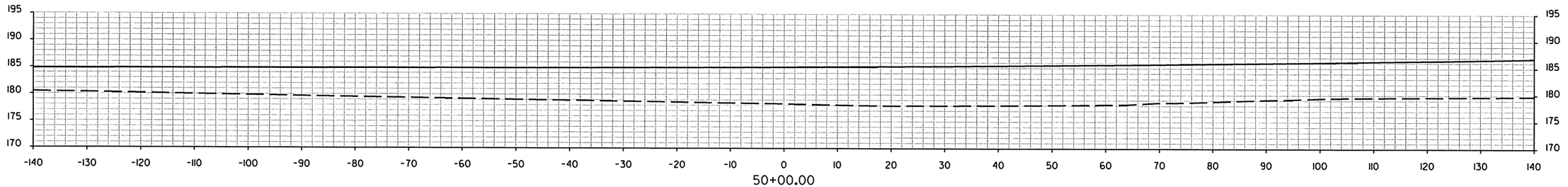




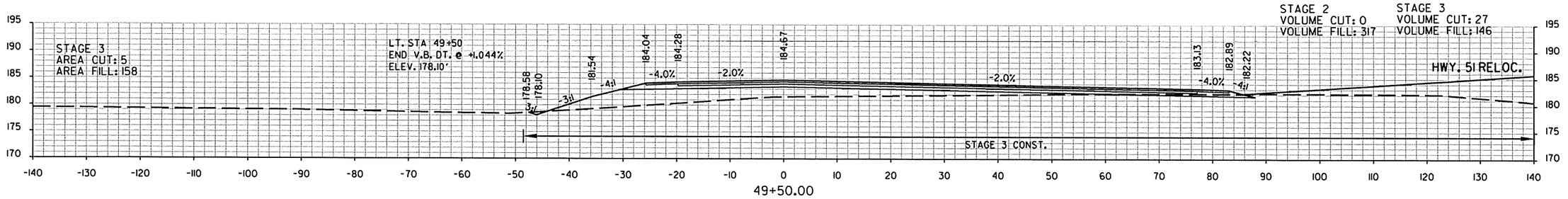
STA. 46+55.52 END SUPERELEVATION (-0.020 FT./FT.)

STA. 47+00.00 TO STA. 48+50.00
ACCESS ROAD

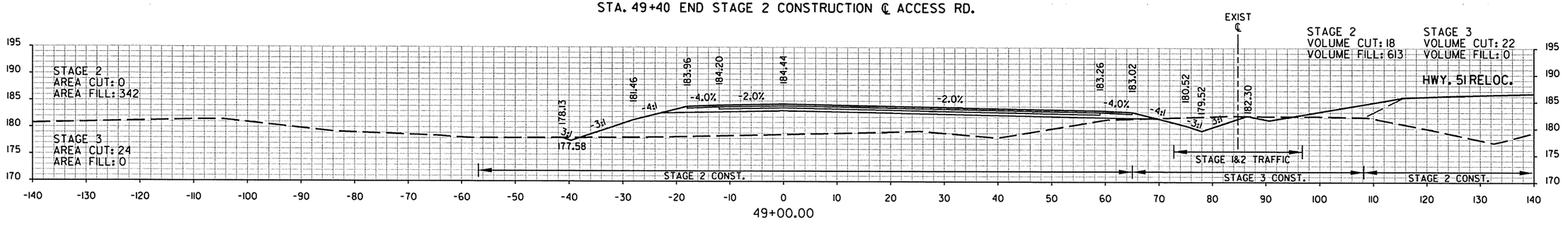
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	171	172
				(2)	CROSS SECTIONS			



STA. 49+86.00 END ℄ ACCESS RD.



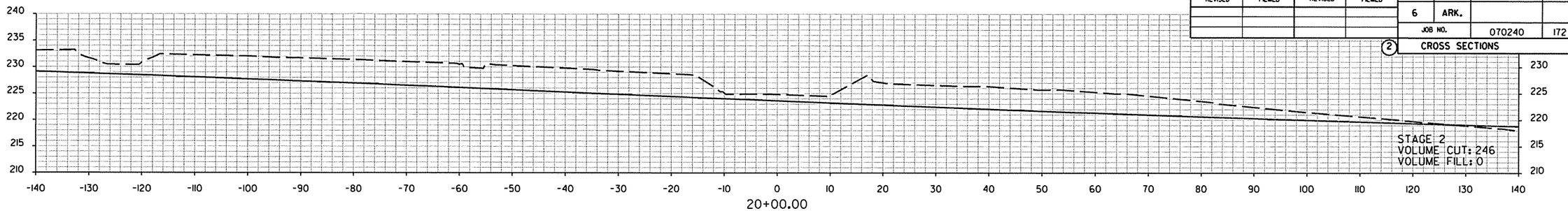
STA. 49+40 BEGIN STAGE 3 CONSTRUCTION ℄ ACCESS RD.
STA. 49+40 END STAGE 2 CONSTRUCTION ℄ ACCESS RD.



STA. 49+00.00 TO STA. 50+00.00
ACCESS ROAD

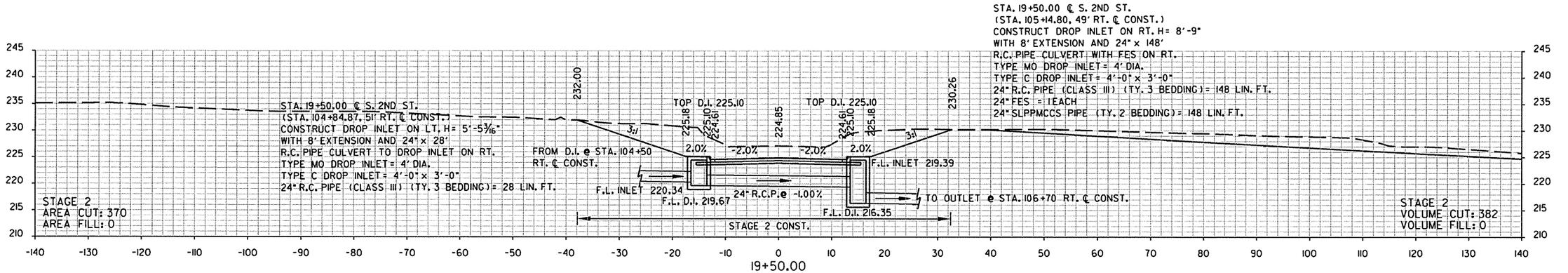
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070240	172	172

(2) CROSS SECTIONS



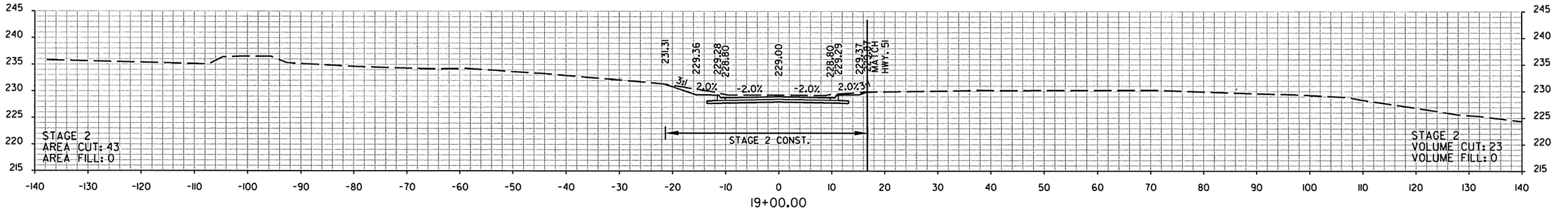
20+00.00

STA. 19+85.96 END CONSTRUCTION ℄ S. 2ND STREET

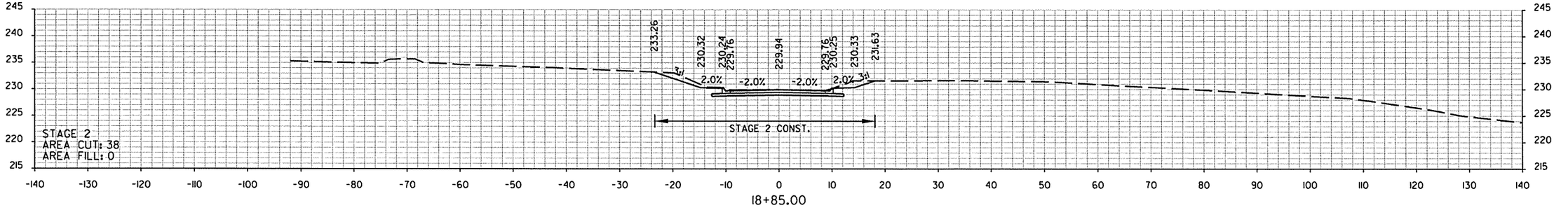


19+50.00

STA. 19+35.00 END 50' TRANSITION ℄ S. 2ND STREET - 26' F-F



19+00.00



18+85.00

STA. 18+85.00 BEGIN 50' TRANSITION ℄ S. 2ND STREET - 20' F-F

STA. 18+85.00 TO STA. 20+00.00
S. 2ND STREET